

MISCELLANEOUS NEW SPECIES AND COMBINATIONS
IN THE PLEUROTHALLIDINAE (ORCHIDACEAE)

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Otomeria callosa Luer, sp. nov.

Planta mediocris caespitosa, foliis crassis anguste lineari-ellipticis caulibus secundariis plus minusve aequilongis, floribus parvis roseis fasciculatis successivis brevipedunculatis, sepalis petalisque similibus ellipticis obtusis, labello ovato obtuso incrassato callo bifurcato magno.

Plant medium-sized, epiphytic, caespitose; roots slender, flexuous. Secondary stems slender, horizontal to erect, 4-10 cm long, enclosed by 4-5 ribbed, imbricating, tubular sheaths, often shredded. Leaf erect, thickly coriaceous, linear-elliptical, 4.5-8.5 cm long including a 5-8 mm long petiole, 10-12 mm wide (much narrower dried), the acute apex apiculate, the base narrowly cuneate into the petiole. Inflorescence a succession of small, purple-appearing, solitary flowers produced from a dense fascicle of old peduncles near the apex of the secondary stem; peduncles ca. 1 mm long; floral bract 2 mm long; pedicel 1.5 mm long; ovary 1.5 mm long; sepals and petals glabrous, translucent rose, suffused with darker rose, free, elliptical, obtuse, nearly equal in size and shape, the lateral sepals lightly falcate, the dorsal sepal 3 mm long, 1.75 mm wide, the lateral sepals 3 mm long, 1.6 mm wide, the petals 2.5 mm long, 1.5 mm wide; lip dull yellow suffused with rose, thick, ovate, 2.25 mm long, 1.5 mm wide, the apex rounded, the disc with a large, erect, bilamellate callus united toward the base, the base of the lip truncate, firmly united to the obsolescent column-foot; column white, semiterete, 1.25 mm long.

ETYMOLOGY: From the Latin *callosus*, "with callus," referring to the prominent callus of the lip.

TYPE: ECUADOR: LOJA: epiphytic in cloud forest south of Yangana, alt. 2450 m, 12 May 1981, C. Luer, J. Luer, J. Kuhn, L. Kuhn & D'Alessandro 6189 (HOLOTYPE: SEL).

DISTRIBUTION: Southeastern Ecuador.

This species is most remarkable in the proportionately large, thick lip with a tall, prominent, forked callus occupying most of the disc. Similar to some species in other genera of the pleurothallids, the lip is firmly attached to the base of the column.

Platystele aculeata Luer, sp. nov.

Planta parva caespitosa, racemo successivifloro filiformi flexuoso folia longipetiolata superanti, sepalis petalisque glabris translucidis attenuatis aculeatis, labello brunneo oblongo apice attenuato hamato aculeato.

Plant small, epiphytic, caespitose; roots comparatively coarse, flexuous. Secondary stems unifoliate, 5-8 mm long, enclosed by 2-3 thin, white, loose, tubular, ribbed sheaths. Leaf coriaceous, elliptical, long-petiolate, 12-20 mm long including the 5-10 mm long petiole, 4-5 mm wide, the apex obtuse, tridenticulate, cuneate below into the slender petiole. Inflorescence a progressively lengthening, flexuous raceme up to 13 cm long including the filiform peduncle, bearing up to 25 successive flowers, 1-2 simultaneously, from a node on the secondary stem; floral bract 0.75 mm long; pedicel 3-3.5 mm long; ovary 0.5 mm long; sepals and petals glabrous, translucent light tan, the dorsal sepal narrowly ovate, attenuate, acute, 6 mm long, 1 mm wide, the lateral sepals similar, slightly oblique, 6 mm long, 1.1 mm wide; petals narrowly ovate, 5 mm long, 0.5 mm wide, filiform from 1 mm above the base;

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lip brown, cellular, oblong, 4.5 mm long, 0.75 mm wide, the apex attenuate, incurved, the base truncate, reflexed to the rigid attachment to the column-foot, the glenion superficial; column nearly 1 mm long, broadly hooded, the foot short, thick.

ETYMOLOGY: From the Latin *aculeatus*, "sharp-pointed," referring to the apices of the flower parts.

TYPE: *ECUADOR*: NAPO: epiphytic in cloud forest southeast of El Carmelo, alt. 2050 m, 17 May 1981, C. Luer, J. Luer, J. Kuhn, L. Kuhn & A. Hirtz 6303 (HOLOTYPE:SEL).

DISTRIBUTION: Northern Ecuador.

This little species, discovered by Alex Hirtz, may be distinguished from the other members of the genus by the long-attenuate, glabrous sepals and petals and an oblong, microscopically cellular, brown lip with an attenuate, hook-like apex.

Platystele culex Luer & Escobar, sp. nov.

Planta minuta caespitosa, racemo capillari paucifloro folia anguste obovata tripli-superanti, floribus successivis roseis, sepalis petalisque tenuibus angustissime ovatis acuminatis, petalis breviter ciliatis, labello ovato anguste attenuatis.

Plant very small, epiphytic, caespitose. roots comparatively large, fleshy, flexuous. Secondary stem unifoliate, abbreviated, 1-2 mm long, enclosed by 1-2 loose, tubular sheaths. Leaf erect, coriaceous, narrowly obovate, 5-12 mm long, 2-3 mm wide, the apex subacute, tridenticulate, gradually narrowed below to the slender base. Inflorescence a successively several-flowered raceme of up to 8 delicate flowers, up to 3 cm long including the capillary peduncle, from a node on the secondary stem; floral bract 0.5 mm long; pedicel 3.5 mm long; ovary 0.5 mm long; sepals and petals translucent pale rose, free, wide-spread, very narrowly ovate, acuminate, acute, the dorsal sepal 6 mm long, 0.5 mm wide, the lateral sepals 6 mm long, 1 mm wide, sparsely ciliate, the petals 4 mm long, 0.3 mm wide, minutely ciliate; lip rose in the basal third with glandular cells, the remainder translucent white, ovate, 3 mm long, 0.6 mm wide, the distal two-thirds attenuated, acute, angled upward in the distal third, the base subcordate with a minute glenion; column hooded, 0.5 mm long, 1 mm wide.

ETYMOLOGY: From the Latin *culex*, "a mosquito," in allusion to the appearance of the flower.

TYPE: *COLOMBIA*: without locality, cultivated at La Ceja, Columbia, by M. & O. Robledo, flowered in cult. 23 Jan. 1978, C. Luer 2313 (HOLOTYPE:SEL).

DISTRIBUTION: Colombia.

This minute species is related to *P. lancilabris* (Rchb. f.) Schltr., but *P. culex* may be distinguished by the narrower flower parts and a very narrow, long-attenuate apex of the lip.

Platystele gemmula Luer, sp. nov.

Herba perpusilla caespitosa, foliis obovatis rotundatis pedunculo bifloro aequilongis, flore pro planta grandi, sepalis petalisque roseo suffusis, ovatis acuminatis ciliatis trichomatibus capitatis, labello parvo atropurpureo ovato acuto.

Plant very small, epiphytic, caespitose; roots comparatively coarse, flexuous. Secondary stems abbreviated, unifoliate, 1.5-2 mm long, enclosed by 1-2 loose, tubular sheaths. Leaf erect, coriaceous, obovate, shortly petiolate,

6-9 mm long including the 1-2 mm long petiole, 3-5 mm wide, the rounded apex notched with an apiculum in the sinus, cuneate below to the base. Inflorescence a successively 2-flowered raceme borne by a filiform peduncle 8-9 mm long, from a node on the secondary stem; floral bract 1 mm long; pedicel 2.5 mm long; ovary 0.5 mm long; sepals and petals free, wide-spread, translucent pale yellowish, suffused with purple centrally, ovate, acuminate, acute, subcarinate, minutely ciliate with capitate hairs, the dorsal sepal 5-6 mm long, 1.5-2 mm wide, the lateral sepals 5-6.5 mm long, 2 mm wide, oblique, more abruptly acuminate, shortly caudate, the petals 3.5-4 mm long, 1.5 mm wide; lip maroon, ovate, acute, 1.3 mm long, 0.75 mm wide, the base truncate with a small glenion; column hooded, 0.25 mm long, 0.9 mm wide.

ETYMOLOGY : From the Latin *gemma*, "a little gem," in allusion to qualities of the flower.

TYPE: COLOMBIA: NARINO: epiphytic in cloud forest above Ricaurte, alt. ca. 1600 m, discovered by A. Hirtz, 3 Nov. 1979, *C. Luer, J. Luer, K. Walter & A. Hirtz 4581* (HOLOTYPE: SEL).

DISTRIBUTION : Southern Colombia.

Compared to the small habit, the flower of this species is notable for its large size. It is borne by a two-flowered peduncle about as long as the little, obovate leaves. The rose-suffused sepals and petals are acuminate and ciliate with minute, capitate hairs. The dark purple lip is very small, ovate and acute.

Platystele jesupiorum Luer, sp. nov.

Planta parva caespitosa, racemo capillari debili multifloro foliis longipetiolatis multilongiore, floribus parvis successivis, sepalis petalisque roseo suffusis ovatis acuminatis ciliatis, labello atropurpureo ovato apice uncinato.

Plant small, epiphytic, caespitose. roots slender, flexuous. Secondary stems unifoliate, slender, 8-15 mm long, enclosed by 1-2 loose, tubular sheaths. Leaf erect, coriaceous, elliptical, long-petiolate, 15-45 mm long including the 8-20 mm long petiole, 7-8 mm wide, the subacute apex tridenticulate, cuneate below into the petiole. Inflorescence a continually lengthening, weak, flexible, capillary raceme to 15 cm long, bearing up to 40 small, successive flowers, 1-3 simultaneously, from a node on the secondary stem; floral bract 1 mm long; pedicel 2 mm long; ovary 0.5 mm long; sepals and petals free, widely spread, translucent pale green, suffused with rose, ovate, acuminate, acute, subcarinate, ciliate, the dorsal sepal 3.5 mm long, 1 mm wide, the lateral sepals 3 mm long, 1 mm wide, the petals more narrowly ovate, acuminate, 3 mm long, 0.6 mm wide; lip maroon, the surface glandular-cellular, ovate, 1.75 mm long, 0.75 mm wide, the apex acute, incurved, the base truncate with a small glenion; column hooded, 0.25 mm long, 0.5 mm wide.

ETYMOLOGY : Named in honor of Ann and Phillips Jesup of Bristol, Connecticut, who have successfully cultivated this species.

TYPE: ECUADOR: without locality, imported from J. Strobel by P. Jesup, cultivated in Bristol, Ct., flowered in cult. 20 Nov. 1977, *C. Luer 2235* (HOLOTYPE: SEL).

DISTRIBUTION : Ecuador, probably southern.

This species may be recognized by the long-petiolate leaves and continually lengthening, hair-like racemes of minute, successive, rosy flowers. The sepals and petals are acuminate and ciliate, and the acute apex of the maroon lip is turned upward like a hook.

Platystele reflexa Luer, sp. nov.

Species haec *P. stenostachyae* (Rchb. f.) Garay affinis sed statura et floribus majoribus, sepalis lateralibus petalisque reflexis et clinandrio denticulato dignoscenda.

Plant relatively large for the genus, epiphytic, caespitose; roots slender, flexuous. Secondary stems slender, erect, unifoliolate, 1-4 cm long, enclosed by 2 thin, ribbed, tubular sheaths. Leaf erect, coriaceous, oblong-elliptical, petiolate, 2-5 cm long including the 0.5-1.5 cm long petiole, 7-13 mm wide, the apex obtuse, tridenticulate, the base cuneate into the petiole. Inflorescence a short, suberect, contracted raceme of successive, orange flowers, 1-2 borne simultaneously, up to 2 cm long including the peduncle ca. 1 cm long, from a 5 mm long, fugacious spathe near the apex of the secondary stem; floral bract thin, 1 mm long; pedicel 2 mm long; ovary triquetrous, 1 mm long; sepals free, ovate, acute, the dorsal sepal 2.25 mm long, 1.25 mm wide, the laterals reflexed, slightly oblique, 2 mm long, 0.9 mm wide; petals narrowly ovate, slightly oblique, reflexed, 1.75 mm long, 0.5 mm wide; lip elliptical-oblong, 1.75 mm long, 0.9 mm wide, covered by capitate cells, the apex round, the base round to truncate with a small but well-developed glenion; column stout, broadly hooded, the wings denticulate, 0.75 mm long, 0.75 mm wide, with a short, broad foot.

Etymology: From the Latin *reflexus*, "reflexed," referring to the reflexed sepals and petals.

Type: ECUADOR: MORONA-SANTIAGO: epiphytic in rain forest near the Río Calagras, alt. 1600 m, 19 Sept. 1980, cult. at SEL 80-1450, flowered in cult. 1 Dec. 1980, C. Luer, J. Luer, A. Andreetta et al. 5601 (Holotype: SEL).

Distribution: Southeastern Ecuador.

Although vegetatively some plants of *P. stenostachya* equal some of those of *P. reflexa* in size, the leaves of the latter are broader. Florally the two species are basically very similar, but the flowers of *P. reflexa* are considerably larger, not as "microscopic" as those of *P. stenostachya*. The sepals and petals of *P. reflexa* are swept back parallel to the ovary. *Platystele stenostachya* occurs in coastal Ecuador.

Pleurothallis adeleae Luer, sp. nov.

Planta robusta grandis terrestris, caulibus secundariis altis quam foliis ellipticis rigidis longioribus, floribus magnis successivis solitariis pendulis longipedicellatis, sepalis atropurpureis extus nitentibus dorsali ovato synsepalo late cordato concavo, petalis triangularibus acutis, labello niveo transverse ovato apiculato.

Plant large, robust, terrestrial, caespitose; roots coarse, flexuous. Secondary stems erect, robust, unifoliolate, 25-45 cm long, with a close tubular sheath below the middle and 1-2 others at the base. Leaf glossy green, erect, rigidly coriaceous, oblong-elliptical, 12-18 cm long, 3.5-7 cm wide, the apex shortly acuminate, acute, tridenticulate, the base sessile, cordate, the basal lobes extending ca. 1 cm behind the junction with the secondary stem. Inflorescence a dense fascicle of 1-flowered peduncles, 1-5 large, pendent flowers produced simultaneously, from a reclining spathe 2-2.5 cm long from the base of the leaf, the peduncles 5-10 mm long, enclosed within the spathe; floral bracts ca. 5 mm long; pedicels arcuate, flaccid, minutely verrucose, 3 cm long; ovary verrucose, 5 mm long; sepals shiny bright dark purple, fleshy, the margins microscopically cellular erose, the surface within cellular papillose, the dorsal sepal ovate, acute, 17-23 mm long, 12-15 mm wide, 13-veined, the lateral sepals connate into a broadly cordate, concave, obtusely acuminate

synsepal 12-16 mm long, 16-20 mm wide unspread, 16-veined; petals purple above the middle, white below the middle, triangular, acute, oblique at the base, 8 mm long, 3.25 mm wide; lip white, transversely ovate, 3 mm long, 4.75 mm wide, the transverse apex shortly apiculate, the disc with a gradual, rounded, central callus, microscopically cellular papillose, the margins cellular erose; column stout, 1 mm long, 3 mm wide, footless.

Etymology: Named in honor of Adele D'Alessandro who first discovered this species.

Type: *ECUADOR*: LOJA: terrestrial on wet grassy slopes south of Yangana, alt. 2250 m, 11 May 1981, C. Luer, J. Luer, J. Kuhn, L. Kuhn, and D. D'Alessandro 6148 (Holotype: SEL).

Distribution: Southern Ecuador.

This magnificent species, allied to *P. ruberrima* Lindl., grows terrestrially in full exposure on wet, north-facing, grassy slopes. The large, showy flowers dangle in clusters below the lower margins of the glossy, lance-like blades.

***Pleurothallis asperima* Luer, sp. nov.**

Herba *P. tubatae* (Lodd.) Steud. affinis sed partibus libris sepalorum asperimis et labello alte bicristato apice acuto integro laevique differt.

Plant medium in size, epiphytic, densely caespitose; roots slender, flexuous. Secondary stems erect, unifoliate, occasionally prolific, 3-9 cm long, with a close, brown, tubular sheath from below the middle and another sheath at the base. Leaf erect, smooth, coriaceous, oblong-elliptical, 3.5-7.5 cm long including a 0.5-1 cm long petiole, 1.6-2.8 cm wide, the apex obtuse to rounded, minutely apiculate in an apical sinus, the base cuneate into the petiole. Inflorescence a solitary, erect, several-flowered, secund raceme to 15 cm long including the slender peduncle, from near the apex of the secondary stem; floral bract and pedicel each 3-4 mm long; ovary 2 mm long; sepals connate to near the middle to form a white, cylindrical, sepaline tube below the middle, the free parts reflexed, bright orange, densely short-spiculate within, otherwise glabrous, the dorsal sepal linear, obtuse, 10 mm long, 2 mm wide, connate to the lateral sepals for 5 mm, the lateral sepals similar to the dorsal sepal, connate to each other for 3.5 mm; petals white, oblong, obtuse, 3.5 mm long, 1.5 mm wide; lip white, oblong, arcuate, 4 mm long, 1.25 mm wide unspread, with tall, erect, obtuse lateral lobes near the middle extending forward onto the middle lobe as erose, marginal carinae, the apex acute, entire, smooth, the base narrowly truncate, hinged to the column-foot; column white with purple spots, semiterete, 2.5 mm long with an equally long foot.

ETYMOLOGY: From the Latin *asperimus*, "very densely covered with short, stiff hairs," in reference to the inner surfaces of the free part of the sepals.

TYPE: *BOLIVIA*: AZUAY: Santa Isabella, alt. 1500 m, A. Hirtz s.n., cultivated at SEL, flowered in cult. 19 March 1979, C. Luer 4039 (HOLOTYPE: SEL).

DISTRIBUTION: Ecuador.

This species is closely related to the relatively frequent and variable Central American species commonly known as *Physosiphon tubatus* (Lodd.) Lindl., but the former may be readily distinguished by the densely spiculate internal surfaces of the sepals and the smooth anterior lobe of the lip.

Pleurothallis colothrix Luer, sp. nov.

Planta mediocris repens, caulibus secundariis ascendentibus foliis angustissime ovatis subaequilongis vaginis pubescentibus, floribus fasciculatis solitariis brevipedunculatis, sepalis extus ovario bracteisque breviter pubescentibus, sepalis translucidis alboflavescentibus anguste ovatis obtusis, petalis apice attenuatis sepalis subaequilongis, labello subpandurato apice rotundato disco cum callo basali rotundato.

Plant medium-sized, epiphytic, repent, the rhizome stout, 30 or more cm long, 0.5-1 cm between secondary stems, enclosed by densely pubescent sheaths. Secondary stems ascending, slender, unifoliate, 6-11 cm long, concealed by 4-5 close, tubular, imbricating sheaths with transversely arranged, digitated, scaly trichomes. Leaf erect, coriaceous, narrowly ovate, acute, 10-13 cm long, 1-1.5 cm wide, the base cuneate into a short, indistinct, conduplicate petiole. Inflorescence a fascicle of a few, single flowers borne from a congested aggregation of buds near the apex of the secondary stem, covered by 2-3 pubescent bracts 1 mm long; peduncles 2-3 mm long, pubescent; floral bract and pedicel each 2-4 mm long, pubescent; ovary 1.5 mm long, sparsely covered by short, red spicules; sepals translucent yellow-white, sparsely short-pubescent externally, free, the dorsal sepal linear-ovate, obtuse, 10 mm long, 2.25 mm wide, the lateral sepals similar to the dorsal sepal, slightly oblique, 9.5 mm long, 1.75 mm wide; petals translucent yellow-white, ovate near the base, entire, 9 mm long, 1.5 mm wide, the apex long-attenuate, acute, slightly thickened with revolute margins; lip yellow-white, oblong-subpandurate, 2.5 mm long, 1.25 mm wide, slightly narrowed above the middle, the apex rounded, recurved, with thin, erect, obtuse, marginal angles below the middle, the disc with a thick, rounded callus from the base to near the middle where the sides of the callus become a small pair of parallel carinae lightly colored with purple, the membranous base hinged to the column-foot; column greenish white, stout, 2 mm long, broadly winged with a pair of short, obtuse, apical teeth, with a concave foot 1 mm long.

ETYMOLOGY: From the Greek *kolos* (κολος), "shortened," and *-thrix* (-θριξ), "haired," referring to the short pubescence of the sheaths, bracts, ovary and sepals.

TYPE: *ECUADOR*: MORONA- SANTIAGO: epiphytic in cloud forest east of Paute, alt. 1700 m, 10 July 1977, cultivated at SEL, 77-2694, flowered in cult. 26 March 1981, C. Luer, J. Luer, G. Luer & A. Andreetta 5991 (HOLOTYPE: SEL).

DISTRIBUTION: Southeastern Ecuador.

This medium-sized relative of *P. affinis* Lindl. is repent, reminiscent of *P. trachychlamys* Schltr., but considerably larger. The flowers are also very similar to those of *P. affinis*, but the lip has a basal callus similar to that of *P. trachychlamys*, but without the lateral lobes.

Pleurothallis cubitoria Luer, sp. nov.

Planta mediocris grandisve, foliis anguste ovatis acutis caulibus secundariis gracilibus brevioribus, flore pallide flavovirescenti grandi solitarii brevipedunculato super folium cubanti, sepalo dorsali longissime attenuato, synsepalo angustissime lineari-ovato, petalis filiformibus folium amplectentibus, labello anguste ligulato.

Plant medium-sized to large, epiphytic, caespitose; roots slender, flexuous. Secondary stems slender, suberect to horizontal, unifoliate, 16-20 cm long, with a close, tubular sheath below the middle and another 1-2 at the base. Leaf spreading, coriaceous, narrowly ovate, 11-15 cm long, 2.3-2.7 cm wide, gradually narrowed to the acute, tridenticulate apex, the base rounded to

shallowly cordate. Inflorescence a large, solitary flower adpressed to the surface of the leaf, produced successively from a 10-12 mm long, fugacious spathe at the base of the leaf; peduncle 3-4 mm long; floral bract 4-5 mm long; pedicel 7 mm long; ovary 4 mm long, yellow-white; sepals pale yellow-green, spreading 180°, the dorsal sepal ovate at the base, the apex long-acuminate, attenuate, 40 mm long, 3.5 mm wide, the lateral sepals united into a very narrowly ovate synsepal 38 mm long, 5 mm wide, the acute apex minutely bifid; petals filiform, 13 mm long, less than 1 mm wide, spreading, with the apices reflexed around the margins of the leaf, the base minutely biauriculate; lip yellow, narrowly oblong-ligulate, minutely verrucose, 8.5 mm long, 3 mm wide, the obtuse apex microscopically denticulate, the glenion well-developed, the truncate base concave on the end, hinged to the base of the column; column stout, 1.5 mm long, 1.5 mm wide, the foot obsolescent.

ETYMOLOGY: From the Latin *cubitorius*, "of a lying posture" (*cubare*, "to lie"), referring to the unique posture of the flower suggesting a snooze in a chaise longue.

TYPE: *ECUADOR*: ZAMORA-CHINCHIPE: epiphytic in forest near Valladolid, alt. ca. 2600 m, July, 1975, Walter Teague s.n., cultivated in San Francisco, Calif., flowered in cult. Aug. 1979, *C. Luer 4110* (HOLOTYPE: SEL).

DISTRIBUTION: Southern Ecuador.

The flower of this species lies flat upon the leaf and differs from that of *P. stenosepala* Rolfe in the filiform dorsal sepal, narrower synsepal, and filiform petals that clasp the leaf behind — as if trying to hold on.

***Pleurothallis demissa* Luer & Vásquez, sp. nov.**

Inter species *P. antenniferae* Lindl. affines species haec caulibus secundariis gracillimis folio anguste elliptico acuminato longioribus, racemo longissimo flaccido demisso multifloro, floribus nonresupinatis, sepalo impari synsepaloque ovatis acutis concavis, petalis linearibus acutis et labello late triangulari angulis basalibus rotundatis distinguitur.

Plant medium in size, epiphytic to terrestrial, caespitose to shortly repent; roots fasciculate, slender, flexuous. Secondary stems erect to ascending or arching, very slender, unifoliate, 18-33 cm long, with a close, tubular sheath near the middle and another 1-2 sheaths at the base. Leaf suberect to spreading, more or less horizontal, thinly coriaceous, narrowly elliptical, 10-23 cm long, 1.5-3.8 cm wide, the apex acuminate, acute, tridentate, the base cuneate, sessile. Inflorescence racemose, 1-2 slender, flaccid, pendent, subdensely many-flowered, secund racemes of non-resupinate flowers, to 25 cm long including the filiform peduncle, from a spathe 1-1.5 cm long at the base of the leaf; floral bract 3-5 mm long, tubular; pedicel 3-4 mm long; ovary 3 mm long; sepals and petals transparent rose, glabrous, the middle sepal ovate, acute, concave, 5.5-6.5 mm long, 3 mm wide, the lateral sepals connate into an ovate, acute, concave synsepal 5-6.5 mm long, 3.5 mm wide; petals linear, acute, 5.5-6 mm long, 0.5 mm wide, thickened toward the apex; lip light green, transversely triangular, 1.75 mm long, 4 mm wide expanded, the basal angles rounded, the apex shortly acuminate, obtusely acute and incurved, the broad base hinged to the base of the column; column stout, 1.5 mm long, the foot obsolescent.

ETYMOLOGY: From the Latin *demissus*, "drooping, weak," referring to the habit of the inflorescence.

TYPE: *BOLIVIA*: LA PAZ: Prov. of Nor Yungas, terrestrial on steep wet road embankment, alt. 2450 m, southwest of Coroico, 4 Feb. 1980, *C. Luer, J. Luer, R. Vasquez & R. Lara 5108* (HOLOTYPE: SEL).

ADDITIONAL MATERIAL EXAMINED: *BOLIVIA*: COCHABAMBA: Prov. of Chapare, epiphytic in cloud forest along the road to Tablas, alt. 2600 m, *C. Luer*, *J. Luer*, & *R. Vasquez 5183* (SEL).

DISTRIBUTION: Bolivia.

This species is easily distinguished from *P. antennifera* and its allies by the long, slender secondary stems, the long, narrow leaf, and the long, drooping flaccid raceme. The flowers are "properly rotated," but due to the fact that the raceme is pendent, the lip again regains its uppermost position in the flower.

Pleurothallis diminuta Luer, sp. nov.

Planta *P. brenneri* Luer affinis sed habitu floribusque minore, pedunculo unifloro et sepalis glabris distinguitur.

Plant small, epiphytic, caespitose; roots slender, flexuous. Secondary stems slender, unifoliate, 1.5-2.5 cm long, enclosed by a ribbed, tubular sheath from the lower third and with another sheath at the base. Leaf dark green, purple beneath, suberect, coriaceous, elliptical, 12-25 mm long including the 4-6 mm long petiole, 6-9 mm wide, the obtuse apex minutely emarginate, the base cuneate into the petiole. Inflorescence a fascicle of 1-flowered, 5 mm long peduncles produced intermittently, from a spathe 3 mm long at the apex of the stem; floral bract 1-1.5 mm long; pedicel 1.5 mm long; ovary glabrous, 2 mm long; dorsal sepal dull tan, spotted with purple, oblong, obtuse, 6 mm long, 2.5 mm wide; lateral sepals dull tan, glabrous within, reflexed, connate to above the middle into an obovate, bifid lamina 6 mm long, 3.25 mm wide together, the apices subacute; petals translucent yellow with a purple midvein, oblong-obovate, 3.25 mm long, 1.5 mm wide, the apex rounded; lip purple, arcuate, the lamina oblong with subacute basal angles, 2.5 mm long, 1.2 mm wide, with a pair of intramarginal carinae, the apex rounded, the narrow claw 1 mm long; column green, semiterete, 2 mm long, with a foot equally long.

Etymology: From the Latin *diminutus*, "made small," referring to the small stature of the species.

Type: *ECUADOR*: LOJA: epiphytic in cloud forest south of Yangana, alt. 2450 m, 12 May 1981, *C. Luer*, *J. Luer*, *J. Kuhn*, *L. Kuhn* & *D. D'Alessandro 6195* (Holotype: SEL).

Distribution: Southern Ecuador.

When the first plant of the little species was found, it was believed to be a depauperate specimen of *P. brenneri*, but the discovery of other plants in the population indicated that that was not the case. *Pleurothallis diminuta* may be distinguished by the smaller habit and short, single-flowered peduncles bearing smaller, glabrous flowers. The ovaries and adjacent supporting structures of the specimens preserved are covered by a network of hyphae which gives the appearance of a dense, minute, black pubescence.

Pleurothallis dracontea Luer, sp. nov.

Species haec *P. pachyglossae* Lindl. affinis sed sepalis intus villosis, petalis extus longituberculatis intus bicarinatis et labello minore angustioreque distinguitur.

Plant medium-sized, epiphytic, caespitose; roots slender, flexuous. Secondary stems slender, erect, unifoliate, 5-13 cm long, with a tubular sheath from below the middle and 1-2 short sheaths at the base. Leaf erect, coriaceous, elliptical, 5-9.5 cm long, 1.5-2.5 cm wide, the acute apex tridenticu-

late, the base cuneate, sessile. Inflorescence an erect, several-flowered raceme, 2-3 flowers open simultaneously, 10-17 cm long including the slender, 6-8 cm long peduncle from a slender, appressed, 1 cm long spathe at the base of the leaf; floral bract 4 mm long; pedicel 5-8 mm long; ovary 5-6 mm long; sepals dark purple, villous within, the hairs white, the dorsal sepal ovate, concave, acuminate, acute, 21 mm long, 5 mm wide, the lateral sepals connate into an ovate, concave synsepal 22 mm long, 8 mm wide expanded, bicarinate, the toothed carinae protruding at the bifid apex; petals white, marked with purple, obovate-oblong, concave, the apex rounded, 5.5 mm long, 3 mm wide, long-tuberculate externally, smooth within except for 2 well-defined carinae along the outer nerves toward the apical margin, striped with purple along the 3 nerves; lip white, marked with purple, narrowly oblong-trilobed, thick, 6 mm long, 1.5 mm wide, the basal lobes erect, short, rounded, the distal half semiterete, verrucose, incurved to the narrowly obtuse apex, the deflexed base hinged to the column-foot; column dark purple, semiterete, stout, 2 mm long, the foot white, also 2 mm long.

Etymology: From the Latin *draconteus*, "dragon-like," in allusion to the hairy, gaping mouth with a warty, upturned tongue.

Type: COSTA RICA: HEREDIA: epiphytic in cloud forest east of the pass north of Castillo, alt. 2000 m, 21 June 1981, C. Luer & A. Luer 6358 (Holotype: SEL; Isotype: CR).

Distribution: Costa Rica.

This species is related to *P. pachyglossa*, but may be distinguished by the sepals with a long-pubescent interior, by the petals with a long-tuberculate exterior and bicarinate interior, and by a small, verrucose lip with a narrow, upturned apex.

***Pleurothallis flexibilis* Luer & Vásquez, sp. nov.**

Planta mediocris pendens, caulibus secundariis gracilibus flexibilibus flexuosis vaginis lepanthiiformibus folio anguste elliptico longioribus, racemo brevi congesto paucifloro, floribus minutis purpureis, sepalis obtusis concavis ciliatis, petalis nanis oblongis ciliatis, labello ligulato ciliato basi bilobulato, columna bidentata.

Plant medium in size, epiphytic, caespitose, pendent; roots slender, flexuous. Secondary stems slender, descending, weak, flexible, flexuous, unifoliate, 5-14 cm long, enclosed by 8-14 close, imbricating, ribbed sheaths with dilated, oblique ostia with thickened, ciliated margins. Leaf pendent, coriaceous, elliptical, 3.5-9 cm long, 0.9-1.5 cm wide, the apex acute, tridentate, the base cuneate to a short, indistinct petiole. Inflorescence a short, congested raceme, up to 15 mm long including the 6-7 mm long peduncle, of 4-6 minute flowers, from the apex of the secondary stem; floral bract, pedicel and ovary each 1 mm long; sepals purple, whitish toward the base, concave, the margins sparsely ciliate, otherwise glabrous, the dorsal sepal ovate, 2.25 mm long, 1.5 mm wide, the apex rounded, the lateral sepals ovate, obtuse, 2.25 mm long, 2.1 mm wide together, connate to above the middle to form a shallow mentum below the column-foot; petals translucent watery purple, oblong, 1 mm long, 0.5 mm wide, the rounded apex sparsely ciliate; lip purple-black with white cilia, oblong, 1.5 mm long, 0.5 mm wide, the apex rounded, the base minutely bilobulate, hinged to the column-foot, the disc with a low, longitudinal callus extending from the base; column pale yellow, semiterete, 1.5 mm long, broadly winged above the middle and ending in a pair of apical teeth, the foot channeled, 1 mm long.

ETYMOLOGY: From the Latin *flexibilis*, "flexible," referring to the weak, pendent, flexible secondary stems.

TYPE: *BOLIVIA*: COCHABAMBA: Prov. of Chapare, epiphytic in rain forest along Rio Evispas near the road to Villa Tunari, alt. 500 m, 16 Jan. 1981, C. Luer, J. Luer, E. Besse & R. Vásquez 5639 (HOLOTYPE: SEL).

DISTRIBUTION: Bolivia.

This lepanthiform-stemmed species is characterized by the weak, pendent, flexuous, flexible stems, narrowly elliptical leaves, and a short, congested, few-flowered raceme of minute, purple flowers. The concave sepals are ciliated as well as the ligulate lip. The longitudinal callus of the lip is low, and the apex of the column is bidentate.

***Pleurothallis galerita* Luer, sp. nov.**

Planta mediocris caespitosa, foliis ellipticis acuminatis sessilibus horizontalibus quam caulibus secundariis gracilibus brevioribus, floribus purpureis successivis fasciculatis, sepalo dorsali suborbiculari galeiformi, synsepalo angustiore ovato pubescenti, petalis falcatis serratis, labello late ovato acuto marginibus laceratis.

Plant medium in size, epiphytic, caespitose; roots slender, flexuous. Secondary stems slender, suberect to horizontal, unifoliate, 9-15 cm long, with a close, tubular sheath below the middle and another sheath at the base. Leaf spreading, horizontal, coriaceous, elliptical-oblong, 4.5-8 cm long, 1.8-2.8 cm wide, the apex shortly acuminate, tridenticulate, the sessile base rounded to cordate, the basal lobes extending ca. 5 mm behind the junction with the secondary stem. Inflorescence a fascicle of successive, solitary flowers, appearing 1-3 simultaneously on the dorsum of the leaf, from a spathe 8-12 mm long at the base of the leaf; peduncles 1-5 mm long; floral bract 5 mm long, pedicel 7 mm long; ovary 4 mm long; sepals translucent purple, veined in darker purple, the dorsal sepal suborbicular, deeply concave, minutely ciliate, 9 mm long, 6.5 mm wide unspread, 6-veined, the obtuse apex abruptly short-acuminate, the base thickened, the lateral sepals connate into an ovate, narrowly obtuse, pubescent synsepal 8 mm long, 4.5 mm wide; petals purple, oblong-falcate, acute, serrate, 4.5 mm long, 1 mm wide; lip erect, purple with the center white, broadly ovate, 3.5 mm long, 3.5 mm wide, narrowed above the middle to an acute apex, the margins lacerate, the truncate base broadly and shallowly concave on the end; column stout, 0.75 mm long, 1.25 mm wide, with a broad, thick foot.

Etymology: From the Latin *galeritus*, "wearing a helmet," in allusion to the appearance of the dorsal sepal.

Type: *ECUADOR*: IMBABURA: epiphytic in cloud forest west of Otavalo, Selva Alegre, alt. 2730 m, 1 May 1981, C. Luer, J. Luer, J. Kuhn, L. Kuhn & A. Hirtz 6040 (Holotype: SEL).

Distribution: Northwestern Ecuador.

Among the species similar to *P. grandiflora* Lindl., the flowers of this species are small. The dorsal sepal is deeply concave, considerably wider than the pubescent synsepal. The shield-shaped, fringed lip is held erect, the falcate, serrated petals curving beneath on either side.

***Pleurothallis gracilentia* Luer & Vásquez, sp. nov.**

Species haec *P. angustilabiae* Schltr. affinis, sed statura minore, caulibus secundariis gracillimis, foliis crassis anguste linearibus, racemo brevi paucifloroque et floribus minoribus differt.

Plant small, epiphytic, densely caespitose; roots fine, fasciculate. Secondary stems very slender, erect, unifoliate, 2.5-7.5 cm long, with a close, thin, tu-

bular sheath below the middle. Leaf erect, thickly coriaceous, narrowly linear-elliptical to semiterete, sulcate, 3-6.5 cm long, 3.5-4.5 mm wide, the apex acute, tridenticulate, gradually narrowed below into the sessile base. Inflorescence an erect, 1-1.5 cm long raceme of 2 to 4 flowers, borne from a 3 mm long spathe at the base of the leaf; floral bract thin, brown, 2 mm long; pedicel 1.5 mm long; ovary 0.5 mm long; sepals glabrous, carinate, translucent white with yellow apices, the dorsal sepal ovate, 4-5.5 mm long, 1.5 mm wide, acuminate from the middle to the acute apex, the lateral sepals similar, connate 0.5 mm at the base, occasionally lightly suffused with rose near the base, narrowly ovate, acuminate, acute, 4-5.5 mm long, 1.25 mm wide; petals translucent white, obovate, 2.75-3.75 mm long, 0.75 mm wide, acuminate from the middle to the slender, subulate apex, minutely erose above the middle; lip white, oblong-ligulate, 2 mm long, 0.66 mm wide, with recurved margins, the apex rounded, the disc with a low pair of longitudinal, parallel calli, the base truncate-retuse, delicately hinged to the column-foot; column white, 1.5 mm long, with prominent, subacute wings and toothed at the apex, the sulcate foot 1 mm long.

ETYMOLOGY: From the Latin *gracilentis*, "becoming narrowed," referring to the slender secondary stems and leaves.

TYPE: *BOLIVIA*: LA PAZ: Prov. of Inquisivi, epiphytic in cloud forest between Inquisivi and Circuata, alt. 2550 m, 29 Jan. 1981, cult. at SEL, flowered in cult. 11 March 1981, C. Luer, J. Luer, E. Besse & R. Vásquez 5975 (HOLOTYPE:SEL).

DISTRIBUTION: Bolivia.

This species may be included in the *Pleurothallis angustilabia-obovata* complex. Although the flowers are very similar to those of the other related species, the little *P. gracilentia* may be readily distinguished by the densely caespitose, very slender secondary stems with narrowly semiterete leaves.

Pleurothallis gyas Luer & Vásquez, sp. nov.

Planta grandis scandens alta, caulibus secundariis crassis proliferatibus vaginis hispidis, floribus magnis solitariis successivis brevipedunculatis glomeratis, sepalis puberulis purpureo notatis anguste ovatis, petalis longissimis anguste teretibus et labello ligulato crasso bicarinato obtuso eroso.

Plant large, robust, up to over 1 meter tall, epiphytic to terrestrial, caespitose and scandent; roots coarse, flexuous. Secondary stems stout, cylindrical, unifoliate, proliferating, 7-30 cm long, clothed initially by 3-8 imbricating, hispidous, tubular sheaths, the lower ones more densely hispidous. Leaf erect, thickly coriaceous, narrowly ovate, 7-18 cm long, 2-3 cm wide, the apex acute, tridenticulate, the base cuneate, sessile. Inflorescence a dense fascicle of large, successive, solitary flowers produced from a node at the apex of the secondary stem; peduncles 2-4 mm long, enclosed by imbricating, pubescent bracts; pedicel 3 mm long; floral bract inflated, lobulated, spiculate, 5-8 mm long, 4-6 mm wide expanded, enclosing the base of the flower; ovary 2 mm long, minutely pubescent; sepals rose to tan, dotted or veined in darker rose, purple or brown, fleshy, finely pubescent externally, the margins more or less revolute, the dorsal sepal ovate, narrowly obtuse, 16-18 mm long, 5-6 mm wide, the lateral sepals free, ovate-falcate, subacute, pubescent over the convex inner part of the base, 15-16 mm long, 5-6 mm wide; petals ovate, 20-25 mm long, 2.5-4.5 mm wide, the margins minutely erose, the apex contracted into a thick, semiterete tail ca. 2 cm long; lip red to purple with yellowish calli, oblong, 5 mm long, 2 mm wide, arcuate, the apical half thick, obtuse with erose margins, bicarinate below the middle, the margins

acutely angled to the truncate base, hinged to the column-foot; column red, semiterete, 2.5 mm long, the clinandrium denticulate, the foot thick and equally long.

ETYMOLOGY: Named for Gyas, the classical mythological giant with a hundred arms, in allusion to the glomerate inflorescence with numerous protruding, arm-like petals.

TYPE: *BOLIVIA*: LA PAZ: Prov. of Sud Yungas, epiphytic in scrub vegetation near Unduavi, alt. 3200 m, 28 Jan. 1980, *C. Luer, J. Luer, R. Vásquez & R. Lara* 4975 (HOLOTYPE: SEL).

ADDITIONAL MATERIAL EXAMINED: *BOLIVIA*: LA PAZ: Prov. of Nor Yungas, epiphytic in cloud forest between Unduavi and Coroico, alt. 2800 m, 4 Feb. 1980, *C. Luer, J. Luer, R. Vásquez & R. Lara* 5160 (SEL); COCHABAMBA: Prov. of Chapare, epiphytic in cloud forest northeast of Cochabamba toward Villa Tunari, alt. 2600 m, 26-30 Nov. 1978, *C. Luer, J. Luer, J. Kuhn, L. Kuhn et al.* 3494A, 3588 (SEL).

DISTRIBUTION: Bolivia.

When this robust species grows in shrubs, the series of proliferating secondary stems may reach over one meter in height. The short-pedunculated, long-petaled flowers are produced in dense, glomerate fascicles so that the flower parts, especially the petals, protrude in all directions. The flowers vary in color from pale dull rose to tan with dots or stripes of darker purple or brown. *Pleurothallis frutex* Schltr. var. *robusta* C. Schweinf. from Peru may prove to be synonymous.

Pleurothallis inquisiviensis Luer & Vásquez, sp. nov.

Planta mediocris caespitosa, caulibus secundariis lepanthformibus folio late elliptico purpureo suffuso longioribus, racemo paucifloro brevissimo, sepalò dorsali flavo ovato ciliato, synsepalo oblongo concavo ciliato, petalis acutis longiciliatis, labello spatulato longiciliato basi bilobulato.

Plant medium in size, epiphytic, caespitose; roots slender, flexuous. Secondary stems slender, ascending to erect, unifoliate, 4-10 cm tall, enclosed by a series of 5-9 brown, close, imbricating, ribbed sheaths markedly abruptly dilated into an ovate, acute, ciliated apex. Leaf more or less suffused and veined in purple, erect, coriaceous, broadly elliptical, 3.5-5 cm long including a 5-6 mm long petiole, 1.8-2.8 cm wide, the apex obtuse, tridentate, the base broadly cuneate into the petiole. Inflorescence a short raceme to 1 cm long of 1 to 3 successive flowers borne among a dense fascicle of old peduncles presenting behind the base of the leaf, from within the uppermost cauline sheath; floral bract membranous, tubular, 1.5-2 mm long; pedicel 3-4 mm long; ovary 1.5-2 mm long; dorsal sepal yellow, ovate, subacute, 4 mm long, 2.5 mm wide, connate 0.5 mm basally to the lateral sepals, ciliate; lateral sepals yellow, purple centrally, connate to above the middle into an oblong, concave, rounded, bifid lamina 4 mm long, 3.25 mm wide, ciliate; petals membranous with a purple vein, oblong, 1.75 mm long, 1 mm wide, the acute apex long-ciliate; lip yellow with purple margins, spatulate, 2.5 mm long, 1 mm wide, the apex obtuse, long-ciliate, the base bilobulate, delicately hinged to the column-foot, the disc with a low, basal callus; column white, semiterete, 2 mm long, the apex denticulate, the thick foot 1 mm long.

ETYMOLOGY: Named for the Province of Inquisivi, Bolivia, where the species was discovered.

TYPE: *BOLIVIA*: LA PAZ: Prov. of Inquisivi, epiphytic in cloud forest between Inquisivi and Circuata, alt. 2550 m, 28 Jan. 1981, *C. Luer, J. Luer,*

E. Besse & R. Vasquez 5808 (HOLOTYPE. SEL).

DISTRIBUTION. Bolivia.

This species is similar in habit to *P. orbicularis* (Lindl.) Lindl. and *P. operculata* Luer, but *P. inquisiviensis* may be distinguished by the very short, 1- to 3-flowered racemes of small yellow flowers. The sepals, petals and lip are ciliate, and the lip is spatulate with a low, insignificant basal callus.

Pleurothallis kateora (Garay) Luer, comb. nov.

Physothallis kateora Garay, *Orquideologia* 9:133. 1973.

An examination of fresh flowers and the plant from which the type was described indicates that this species belongs to the conglomerate genus *Pleurothallis*.

Pleurothallis leopardina Luer, sp. nov.

Planta mediocris caespitosa, caulibus secundariis gracilibus quam foliis ellipticis breviter acuminatis longioribus, racemis paucis densifloris folio plus minusve aequilongis, floribus virescentibus purpureo punctulatis glabris, sepalis dorsali synsepaloque suborbicularibus concavis, petalis obovatis obtusis, labello subrhomboideo obtuso supra medium bicalloso.

Plant medium in size, epiphytic, caespitose; roots numerous, slender, flexuous. Secondary stems slender, erect, unifoliate, 14-21 cm long, with a close, tubular sheath below the middle and 1-2 shorter sheaths at the base. Leaf erect, thinly coriaceous, elliptical, 8-13.5 cm long, 2.5-4.5 cm wide, the apex shortly acuminate, acute, tridenticulate, the base cuneate to rounded, sessile. Inflorescence racemose, 1-6 arching, densely many-flowered racemes 8-11 cm long including the 3-4 cm long peduncle, from a reclining spathe 1.5-1.8 cm long at the base of the leaf; floral bract 3 mm long; pedicel 5 mm long; ovary 2 mm long; all floral parts light green, spotted with purple, glabrous; dorsal sepal suborbicular, concave, obtuse, 4 mm long, 3 mm wide unspread, 3-veined; lateral sepals connate into a synsepal similar to the dorsal sepal, 3.75 mm long, 3 mm wide, 4-veined; petals obovate, narrowed below the middle, obtuse, 2.3 mm long, 0.9 mm wide; lip subrhomboid, 2.25 mm long, 2.25 mm wide, the apex obtuse, the sides obtusely angled, suberect, the disc with a pair of low, smooth, rounded, adjacent calli above the middle, concave below the middle, separated from the minutely concave base by a low, transverse carina; column stout, 1.5 mm long, the thick foot with a short, bulbous apex.

Etymology: From the Latin *leopardina*, "like a leopard," in allusion to the diffusely spotted floral parts.

Type: ECUADOR: LOJA: epiphytic in cloud forest south of Yangana, alt. 2450 m, 12 May 1981, C. Luer, J. Luer, J. Kuhn, L. Kuhn & D. D'Alessandro 6190 (Holotype: SEL).

Distribution: Southern Ecuador.

This species seems to be most closely allied to the Colombian *P. poculifera* Luer & Escobar, but the lip of the latter is distinguished by the pair of glandular calli above the base; the pair of calli of the lip of *P. leopardina* is smooth and near the apex.

Pleurothallis mastophora Luer & Vásquez, sp. nov.

Planta pro sectione grandis, caulibus secundariis prolificantibus vaginis lepanthiformibus, racemo delicatulo laxe plurifloro foliis oblongis reticulatis multilongiore, sepalis albescentibus libris carinatis longicaudatis lateralibus

dorsali angustioribus, petalis ovatis, labello trilobato infra medium cum callis duobus mammosis, lobo antico ligulato lobis lateralibus supra basim rotundatis erectis.

Plant medium in size to large for the lepanthiform-stemmed section, epiphytic, caespitose and scandent, to 30 cm tall; roots slender, flexuous. Secondary stems slender, prolific, unifoliate, 2-9 cm long, enclosed by 2-7 close, ribbed, imbricating sheaths with dilated, oblique, marginate ostia, the ribs and margins ciliate. Leaf erect, coriaceous, often reticulated in purple and suffused with purple beneath, oblong-elliptical, shortly petiolate, 1-5 cm long including the 1-7 mm long petiole, 4-18 mm wide, the apex rounded, retuse, the base cuneate into the petiole. Inflorescence a delicate, erect raceme 4-9 cm long including the filiform peduncle, of 5 to 13 long-pedicellate flowers; floral bract 1-1.5 mm long; pedicel 6-10 mm long; ovary 0.75 mm long; sepals and petals translucent yellow-white, glabrous; dorsal sepal ovate, the apex contracted into a filiform tail, 12-13 mm long, 2.5 mm wide; lateral sepals free, linear-ovate, acute, carinate, 11-12 mm long, 1 mm wide; petals elliptical, acute, 2.5 mm long, 1 mm wide; lip light yellow, ovate-trilobed, 3 mm long, 1 mm wide, the anterior lobe ligulate, rounded at the apex, with erect, rounded, lateral lobes in the lower third, the disc with a pair of mammary calli below the middle, the truncate base hinged to the column-foot; column white, semiterete, 1.75 mm long, with a foot 1 mm long.

ETYMOLOGY: From the Greek *mastos* (μαστος), "breast" and *-phoros* (φορος), "bearing," in allusion to the calli of the lip.

TYPE: *BOLIVIA*: COCHABAMBA: Prov. of Chapare, epiphytic in cloud forest northeast of Cochabamba, alt. 2840 m, 16 Jan. 1981, C. Luer, J. Luer, E. Besse & R. Vásquez 5645 (HOLOTYPE: SEL).

ADDITIONAL MATERIAL EXAMINED: *BOLIVIA*: COCHABAMBA: Prov. of Chapare, same area, 25 Feb. 1978, R. Vásquez 11 (SEL); LA PAZ: Prov. of Sud Yungas, epiphytic in cloud forest above Rio Unduavi, alt. 2450 m, 6 Feb. 1980, C. Luer, J. Luer, R. Vásquez & M. Manon 5156 (SEL).

DISTRIBUTION: Bolivia.

Among the lepanthiform-stemmed species, *P. mastophora* may be recognized by the prolific stems; small to large, oblong, reticulated leaves; and long, loose racemes of comparatively large, delicate, widely spread, whitish flowers. The lip is 3-lobed with a pair of mammillate calli below the middle.

Pleurothallis melanostele Luer & Vásquez, sp. nov.

Herba mediocris caespitosa, foliis anguste oblongis petiolatis caulibus secundariis gracilibus aequilongis, racemis paucis erectis gracilibus longis dense multifloris, floribus parvis glabris flavovirescentibus, sepalis obtusis, petalis retusis, labello ovato trilobato concavo lobo antico crasso ligulato, columna antheraque nigris.

Plant medium in size, epiphytic, caespitose; roots slender, flexuous. Secondary stems slender, erect, fasciculate, unifoliate, 5-12 cm long, with a tubular bract below the middle and 2-3 imbricating sheaths at the base. Leaf erect, coriaceous, narrowly oblong, petiolate, 6-12 cm long including the 1-1.5 cm long petiole, 1-2.2 cm wide, the obtuse apex tridentate, the base cuneate into the petiole. Inflorescence racemose, 1-2 erect, slender, densely many-flowered racemes 10-15 cm long including the 1-3 cm long peduncle, produced among old peduncles from a 1-1.5 cm long spathe at the apex of the secondary stem; floral bract oblique, infundibular, 2.5 mm long, enclosing the pedicel 0.5 mm long and the ovary 1.5 mm long; sepals light yellow-green, carinate, 1-veined, glabrous, the dorsal sepal ovate, concave, obtuse,

2.5 mm long, 1.5 mm wide, the lateral sepals ovate, oblique, obtuse, 2.5 mm long, 1.5 mm wide, connate basally for 0.5 mm; petals translucent yellow, oblong, 1.25 mm long, 0.9 mm wide, the apex truncate, retuse; lip yellow-green, ovate, concave, indistinctly 3-lobed, 2 mm long, 1.25 mm wide unspread, the lateral lobes occupying the lower half, broadly rounded, erect, the anterior lobe thick, subverrucose, ligulate, obtuse, the truncate base broadly attached to the column-foot; column purplish black, semiterete, 1.5 mm long, with a pedestal-like base, the anther purplish black.

ETYMOLOGY: From the Greek *melano-* (μελανο-), "black," and *stele* (στηλη), "column," referring to the purplish black color of the column and anther.

TYPE: *BOLIVIA*: LA PAZ. Prov. of Inquisivi, epiphytic in cloud forest between Inquisivi and Circuata, alt. 2550 m, 28 Jan. 1981, C. Luer, J. Luer, E. Besse & R. Vásquez 5798 (HOLOTYPE: SEL); cloud forest north of Inquisivi, alt. 2850 m, 27 Jan. 1981, C. Luer, J. Luer, E. Besse & R. Vásquez 5751 (SEL).

DISTRIBUTION. Bolivia.

This *Stelis*-like species of the *P. floribunda*-complex is distinguished by the very small, yellow-green flowers with a conspicuous, relatively large, black column.

Pleurothallis micklowii Luer & Vásquez, sp. nov.

Planta mediocris caespitosa, caulibus secundariis gracilibus folio anguste elliptico tortipetiolato aequilongis, racemis paucis brevibus plurifloris ex spatha conspicua, sepalo dorsali synsepaloque translucidis acutis concavis, petalis ovatis acuminatis, labello integro crasso obovato obtuso basi ad pedem columnae brevis affixo.

Plant medium in size, epiphytic, caespitose; roots slender, fasciculate. Secondary stems slender, terete, erect, 5-10 cm long, unifoliate, with a close, tubular sheath below the middle and another sheath at the base. Leaf thinly coriaceous, erect, narrowly elliptical-oblong, petiolate, 6-11.5 cm long including the twisted 7-10 mm long petiole, 12-22 mm wide, the apex acute, tridenticulate, the base narrowly cuneate into the petiole. Inflorescence racemose, 1-3 short, distichous, several (7-13)-flowered racemes 3-4 cm long, from a conspicuous, oblique spathe 12-18 mm long, 3-4 mm wide, at the base of the petiole; floral bract infundibular, 1.5 mm long; pedicel 2 mm long; ovary 1 mm long; floral parts glabrous, pale translucent green with a few pale rose spots; dorsal sepal ovate, acute, 3.5 mm long, 1.75 mm wide; lateral sepals connate into a shortly bifid, ovate, subacute, concave synsepal 3.75 mm long, 2.75 mm wide spread; petals ovate, acuminate, acute, 2 mm long, 1 mm wide; lip thick, obovate, entire, 2 mm long, 1.25 mm wide, concave below the middle, the apex rounded, the truncate base broadly and solidly connate to the column-foot; column terete, 0.75 mm long, the anther and stigma apical, the foot short, thick, glandular-cellular.

ETYMOLOGY: Named in honor of Fred Micklow of Westfield, Indiana, who discovered this species.

TYPE: *BOLIVIA*: SANTA CRUZ: without exact locality, collected by F. Micklow, Aug. 1978, cultivated at SEL, flowered in cult. 23 Nov. 1980, C. Luer 5599 (HOLOTYPE: SEL).

DISTRIBUTION. Bolivia.

This small-flowered species is related to the large-flowered *P. pedunculata* (Kl.) Rchb. f. and its allies. The lip is solidly united to the column-foot, a feature found in several genera of the *Pleurothallidinae*.

Pleurothallis nasiterna Luer, sp. nov.

Species haec *P. antenniferae* Lindl. proxima sed floribus immaculatis, synsepalo profundissime concavo, petalis latioribus et labello carnoso lobis basalibus erectis columnam amplexantibus, lobo antico integro aciculato differt.

Plant large, epiphytic, shortly repent, the rhizome stout, ca. 1 mm long between secondary stems; roots numerous, slender, flexuous. Secondary stems slender, erect, unifoliate, 13-36 cm long, with a tubular sheath below the middle and another at the base. Leaf suberect, coriaceous, elliptical, 9-12 cm long, 2.5-4 cm wide, the apex shortly acuminate, acute, tridenticulate, the base obtuse to rounded, sessile. Inflorescence racemose, 1-3 densely many-flowered, arching racemes 10-24 cm long including the peduncle ca. 5 cm long, from a reclining spathe 12-22 mm long at the base of the leaf; floral bract 3-4 mm long; pedicel 3-4 mm long; ovary 3 mm long; sepals green, suffused with purple, glabrous, the dorsal sepal ovate, acute, 5 mm long, 2.5 mm wide, the lateral sepals connate into a deeply concave, suborbicular synsepal 4.75 mm long, 4 mm wide unspread, 3 mm deep, the apex shortly acuminate, spout-like; petals purple, semiterete, narrowly triangular, acute, 4.5 mm long, 0.75 mm wide; lip green, 3-lobed, fleshy, the lateral lobes oblong, ca. 2 mm long, 1 mm wide, obtuse, erect, embracing the column, the middle lobe entire, ovate, ca. 2 mm long, 1.5 mm wide, the apex acuminate, acute, incurved, the base reflexed, attached to the base of the column; column stout, 1 mm long, with a thick, obsolescent foot.

Etymology: From the Latin *nasiterna*, "a watering-pot with a large spout," in allusion to the appearance of the synsepal.

Type: ECUADOR: NAPO: epiphytic in cloud forest southeast of El Carmelo, alt. 2700 m, 17 May 1981, C. Luer, J. Luer, J. Kuhn, L. Kuhn & A. Hirtz 6287 (Holotype: SEL).

Distribution: Northern Ecuador.

This large species seems most closely allied to *P. antennifera*, but sufficient differences exist to separate it. The flowers of the few specimens seen are unspotted; the synsepal is very deeply concave; the petals are comparatively broad and thick; and the thick, basal lobes of the lip are erect and embrace the column.

Pleurothallis nymphalis Luer, sp. nov.

Planta parvula caespitosa, caulibus secundariis brevibus vaginis lepanthiformibus, pedunculo capillari uni- vel bifloro foliis hemisphaeroideis multilongiore, sepalis translucidis roseis caudis setiformibus, sepalo dorsali concavo, synsepalo oblongo bifido, petalis obovatis subrotundatis, labello flavo ovato anguste obtuso infra medium lobulato.

Plant very small, epiphytic, caespitose; roots slender, flexuous. Secondary stems unifoliate, abbreviated, 4-6 mm long, concealed by 2-3 imbricating, ribbed sheaths with dilated, acute, ciliated ostia. Leaf spreading, thickly coriaceous, subhemispherical, convex above, the midrib elevated below, 5-7 mm long including the 0.5 mm long petiole, 4-5.5 mm wide, the rounded apex shallowly notched with an apiculum, the rounded base contracted into the petiole. Inflorescence a 1- to 2-flowered raceme 10-17 mm long including the capillary peduncle, the flowers 5-6 mm apart, from a node below the leaf-stem abscission layer; floral bract close, thin, tubular, 0.75 mm long; pedicel 4 mm long; ovary 0.5 mm long; sepals translucent rose, glabrous, the dorsal sepal ovate, concave, carinate, 11 mm long including the tail, 4 mm wide expanded, the acute apex contracted into a filiform tail ca. 3.5 mm long, the

lateral sepals connate 4 mm into an oblong, bifid, bicarinate lamina 11 mm long, 3 mm wide, the acute apices produced into similar tails; petals translucent yellow, obovate, 3.5 mm long, 1.8 mm wide, the rounded apex oblique, subapiculate; lip yellow, ovate, 4.25 mm long, 1.75 mm wide, the apex narrowly obtuse, with a pair of erect, rounded marginal lobes below the middle, the disc thickened, shallowly sulcate centrally, the base hinged to the column-foot; column yellow, slender, semiterete, 2.5 mm long, the foot 1 mm long.

Etymology: From the Latin *nymphalis*, "like a nymph," referring to the mossy habit on the trunks of cloud forest trees.

Type: ECUADOR: LOJA: epiphytic in cloud forest south of Yangana, alt. 2450 m, 12 May 1981, C. Luer, J. Luer, J. Kuhn, L. Kuhn & D. D'Alessandro 6197 (Holotype: SEL).

Distribution: Southern Ecuador.

This little species is distinguished by the thick, hemispherical leaves borne by short, lepanthiform stems. The flowers with rose sepals and yellow petals and lip are large for the size of the plant.

Pleurothallis operculata Luer, sp. nov.

Species haec *P. orbicularis* (Lindl.) Lindl. affinis sed statura majore, folio orbiculari convexo plusminusve horizontali, sepalis ciliatis et labello glabro distinguitur.

Plant medium in size, epiphytic, caespitose; roots fine, flexuous. Secondary stems ascending to erect, stout, 5-11 cm long, unifoliate, concealed by a series of 5-10 brown, ribbed, imbricating sheaths, inflated above, the ostia oblique with the margins and ribs ciliate. Leaf dark purplish green above, dark purple beneath, coriaceous, orbicular, convex, spreading to horizontal, shortly petiolate, 3.5-4.2 cm long, 2.6-3.3 cm wide, the rounded apex shallowly notched with a mucro in the sinus, the rounded base produced into a 1.5-2 mm long petiole. Inflorescence a fascicle of successive peduncles from a node within the uppermost sheath and appearing beneath the concave surface of the leaf, each peduncle ca. 15 mm long including the short 2- to 3-flowered raceme; floral bract and pedicel white, each 1.5 mm long; ovary yellow-white, 1 mm long; sepals translucent yellow-white suffused with rose, ciliate, the dorsal sepal narrowly ovate, acute, 6 mm long, 1.6 mm wide, the lateral sepals connate to near the middle, ovate, the apices narrowly obtuse, thickened, recurved, 6 mm long, 2.5 mm wide expanded together; petals translucent white, obovate, acute, 3 mm long, 0.8 mm wide, finely fimbriate above the middle; lip yellow-white, suffused with rose centrally, glabrous, ovate, narrowly acute, the margins glandular-cellular at most, 3.25 mm long, 1 mm wide, the truncate base bilobulate, delicately hinged to the column-foot, the disc slightly thickened, especially toward the base; column white, winged and bidentate at the apex, 1.75 mm long, the foot short, thick.

ETYMOLOGY: From the Latin *operculatus*, "with a lid," in allusion to the appearance of the leaf over the inflorescence.

TYPE: PANAMA. COCLE. epiphytic in cloud forest, El Cope, R. L. Dressler s.n., cultivated at SEL, 78-480, flowered 18 July 1979, C. Luer 4075 (HOLOTYPE; SEL).

DISTRIBUTION: Panama.

This species is closely allied to the widespread *P. orbicularis*, but *P. operculata* may be recognized by the large, round, convex leaves held more or less horizontally covering the fascicle of peduncles. The flowers of the latter differ in possessing ciliated sepals and a glabrous lip.

Pleurothallis procera Luer & Vásquez, sp. nov.

Planta grandis caespitosa, caulibus secundariis gracilibus folio elliptico longioribus, racemis paucis gracilibus parvifloris folio longioribus, sepalis ovatis obtusis ciliatis lateralibus semiconnatis, petalis oblongis obtusis purpureolimbatis, labello ovato obtuso bicalloso basi subcordato.

Plant medium to large, epiphytic, caespitose; roots coarse, flexuous. Secondary stems slender, ascending to erect, fasciculate, unifoliate, 15-22 cm long, with a tubular sheath below the middle and another 2-3 sheaths at the base. Leaf erect, coriaceous, elliptical, 11-15 cm long including a 1 cm long petiole, 2-2.5 cm wide, the apex obtuse, tridenticulate, the base cuneate into the petiole. Inflorescence racemose, 2-4 erect to arching, slender, densely many-flowered racemes 15-20 cm long, from a 1 cm long spathe at the apex of the secondary stem; floral bract infundibular, oblique, acute, 2.5 mm long, enclosing the 2 mm long pedicel; ovary 1 mm long; sepals yellow, ciliate, uncarinate, the dorsal sepal elliptical, obtuse, apiculate, 4 mm long, 2 mm wide, the lateral sepals ovate, oblique, obtuse, apiculate, connate to the middle, 4 mm long, 2.75 mm wide together; petals yellow, edged in purple, oblong, obtuse, 3 mm long, 1 mm wide; lip yellow with blotches of purple on the calli and margins, ovate, 2.3 mm long, 1.5 mm wide unspread, the apex obtuse, the sides broadly rounded and erect below the middle, the disc with an erect pair of short, rounded calli near the middle; column yellow, edged in purple, semiterete, 1.5 mm long, with a thick, obsolescent foot.

ETYMOLOGY: From the Latin *procerus*, "tall, slender," referring to the habit.

TYPE: *BOLIVIA*: COCHABAMBA: PROV. of Chapare, epiphytic in cloud forest along Rio Ronco, alt. 1780 m, northeast of Cochabamba, 13 Jan. 1981, C. Luer, J. Luer, E. Besse, and R. Vásquez 5630 (HOLOTYPE: SEL).

DISTRIBUTION: Bolivia.

This tall, slender species, found by Roberto Vásquez, is another in the horde of relatives of *P. floribunda* Poepp. & Endl. It is notable in the long, slender, secondary stems; a few slender small-flowered racemes a little longer than the leaves; comparatively large, purple-bordered petals; and an ovate lip with a short pair of rounded calli near the middle.

Pleurothallis quinquecallosa Luer, sp. nov.

Planta grandis caulibus secundariis robustis fasciculatis laxè vaginatis folio ovato amplo multilongioribus, inflorescentia multiracemosa dense fasciculata folio brevioribus; sepalis roseoviridibus ciliatis dorsali suborbiculari lateralibus ovatis semiconnatis, petalis oblongis obtusis uninervatis, labello flavo obovato quinquecalloso base concavo.

Plant large, robust, caespitose, terrestrial (presumably also epiphytic); roots coarse, flexuous. Secondary stems stout, fascicled, erect, 82 cm long in the solitary specimen, with a loose, tubular sheath near the middle and several large, loose, imbricating sheaths (often fragmented) at the base, the outer sheaths enclosing more than 1 stem. Leaf erect, coriaceous, ovate, 23 cm

long, 12 cm wide, the apex acute, tridenticulate, the rounded base contracted into a short, thick, channeled petiole ca. 1 cm long. Inflorescence a dense fascicle of numerous (ca. 50) arching racemes 10-15 cm long, from a deciduous spathe (disintegrated in this specimen) at a node near the apex of the secondary stem; floral bract 2.5-3 mm long; pedicel 2 mm long; ovary 2-2.5 mm long; sepals light greenish rose veined in purple, ciliate, the dorsal sepal broadly ovate, subcarinate, shortly acuminate, acute, 4.5 mm long, 3.25 mm wide, 3-veined; the lateral sepals ovate, oblique, 4.75 mm long, 1.75 mm wide, subcarinate, connate to about the middle; petals similarly colored, glabrous, oblong, obtuse, 3 mm long, 1 mm wide, 1-veined; lip yellow, obovate, 2.1 mm long, 1.2 mm wide unexpanded, the apex obtuse, thickened but with thin margins, bearing near the tip a small pair of adjacent calli, the sides of the lip erect, thin, obtusely angled near the middle, each with a transverse, rounded callus, the center of the disc with a longitudinal callus, the base concave to accommodate the column-foot, the concavity limited by a transverse carina; column stout, 2 mm long, with a thick, bulbous foot.

Etymology: From the Latin *quinque*, "five," and *callosus*, "with calli," referring to the five calli on the lip.

Type: ECUADOR: CARCHI: terrestrial on the road embankment above El Carmelo, alt. 3200 m, 17 May 1981, C. Luer, J. Luer, J. Kuhn, L. Kuhn & A. Hirtz 6269 (Holotype: SEL).

Distribution: Northern Ecuador.

Only one stem of this immense species could be obtained from the plant's high perch on a steep road embankment. The stem appeared to be about average in size; it was not the largest. The inflorescence consists of a shower of racemes shorter than the shortly petiolate leaf. The flowers are basically similar to many of the allied species (e.g. *P. fons-florum* Lindl.), but the lip with five calli distinguishes this species.

Pleurothallis reptans Luer, sp. nov.

Herba parva reptans, foliis ellipticis sessilibus caulibus secundariis subaequilongis, flore parvo aurantiaco bilabiato brevipedunculato solitario successivo, sepalo dorsali synsepaloque ovatis obtusis, petalis angustis serratis, labello ovato acuto microscopice eroso.

Plant small, epiphytic, long-repent, the rhizome 0.5-2 cm long between secondary stems; roots slender, from nodes on the rhizome. Secondary stems ascending-erect, slender, unifoliate, 1.5-3 cm long, the lower half enclosed by 2 imbricating, tubular sheaths. Leaf suberect, coriaceous, elliptical, 2-3 cm long, 0.8-1.1 cm wide, the subacute apex tridenticulate, the base cuneate, sessile. Inflorescence a succession of single, orange flowers from a congested raceme hidden within the 4 mm long spathe at the base of the leaf; peduncle 0.5-2 mm long; floral bract 2 mm long; pedicel 2.5 mm long; ovary 1 mm long; dorsal sepal elliptical, subacute, 3.5 mm long, 2 mm wide, 3-veined; lateral sepals connate into an ovate, obtuse, bi-apiculate lamina 3.25 mm long, 2.5 mm wide; petals narrowly ovate, acute, 2.75 mm long, 0.5 mm wide, the margins serrate; lip ovate, acute, 2 mm long, 1.3 mm wide, the margins cellular erose, the surface flat, cellular-papillose, the base subcordate with subacute basal angles, shortly reflexed and shallowly concave between on the top surface, with a well-developed glenion; column stout, 0.75 mm long, 1 mm wide, with a short foot.

Etymology: From the Latin *reptans*, "creeping," referring to the habit of the plant.

Type: *ECUADOR*: NAPO: epiphytic in cloud forest southeast of El Carmelo, alt. 2050 m, 17 May 1981, C. Luer, J. Luer, J. Kuhn, L. Kuhn & A. Hirtz 6298 (Holotype: SEL).

Distribution: Northern Ecuador.

The creeping habit of this small, orange-flowered species is unusual among its numerous relatives in the "cordate-leaved" group.

Pleurothallis scansor Luer, sp. nov.

Planta mediocris scandens, rhizomate caulibus secundariisque laxè vaginatis plus minusve aequilongis, racemo multifloro folia oblonga breviter petiolata superanti, floribus flavescentibus glabris, sepalis ovatis lateralibus semiconnatis, petalis oblongis obtusis, labello ovato obtuso concavo transverse carinato lateribus erectis obtusis callosis.

Plant medium sized, epiphytic to semiterrestrial, scandent, the rhizomes stout, ascending, occasionally branching, enclosed by tubular sheaths often frayed or shed, 2-8 cm long between secondary stems; roots slender, fasciculate at nodes along the rhizome. Secondary stems stout, ascending, 3-8 cm long, more or less fasciculate with the rhizome, enclosed by 2-3 loose, imbricating, tubular sheaths. Leaf coriaceous, elliptical-oblong, 5-10 cm long including the 1-1.5 cm long petiole, 2-3 cm wide, the apex obtuse to rounded, tridenticulate, the base broadly cuneate into the petiole. Inflorescence an erect, densely many-flowered raceme 15-34 cm long including the 7-10 cm long peduncle, from a spathe 1.5-2.5 cm long, from near the apex of the secondary stem; floral bract 4-6 mm long; pedicel 3-4 mm long; ovary 2-3 mm long; sepals yellow-orange or yellow-green, glabrous, the dorsal sepal ovate, acute, 7.5 mm long, 3.5 mm wide, the lateral sepals ovate, subacute, 8 mm long, 2.5 mm wide, connate to near the middle; petals translucent brown, veined in darker brown, oblong, obtuse, 4 mm long, 1.5 mm wide; lip brown, ovate, 2.5 mm long, 1.5 mm wide, the apex thick, obtuse, the sides below the middle erect, obtusely angled, concave between, with an ill-defined callus along the margins near the middle, the base rounded, concave to accommodate the column-foot, with a transverse carina across the lower third between the two concavities; column stout, 2.5 mm long, with a bulbous foot.

Etymology: From the Latin *scansor*, "climber," referring to the habit of the species.

Type: *ECUADOR*: NAPO: epiphytic in cloud forest southeast of El Carmelo, alt. 2700 m, 17 May 1981, C. Luer, J. Luer, J. Kuhn, L. Kuhn & A. Hirtz 6259 (Holotype: SEL).

Distribution: Northern Ecuador.

This species is notable in the long-scandent habit, the rhizomes and secondary stems clothed in loose, fragmented or deciduous sheaths. The long raceme far exceeds the oblong leaves. The flowers are basically similar to those of the "floribunda" alliance. *Pleurothallis scansor* is perhaps most closely related to *P. orectopus* Luer but from the latter it may be distinguished by the shorter secondary stems and much longer racemes.

Pleurothallis scintillata Luer, sp. nov.

A *P. antennifera* Lindl. et affinitatibus species haec caulibus secundariis gracillimis foliis longioribus, racemo arcuato multifloro, floribus parvis glabris, sepalo dorsali synsepaloque ovatis concavis roseis vel atropurpureis, petalis crassis anguste attenuatis, labello purpureo vel flavo transverse oblongo

apice late rotundato acute revoluto apiculato lateribus rotundatis et basi revoluto distinguitur.

Plant medium in size, epiphytic to terrestrial, caespitose; roots slender, flexuous. Secondary stems erect to suberect, very slender, unifoliate, 8-22 cm long, with a close, tubular sheath near the middle and another 1-2 sheaths near the base. Leaf suberect to spreading, coriaceous, narrowly elliptical, 6-9 cm long, 1-1.5 cm wide, the apex acuminate, acute, tridenticulate, the sessile base cuneate to rounded. Inflorescence racemose, 1-2 arching, many-flowered racemes 9-15 cm long including the slender peduncle ca. 3 cm long, from a spathe 11-14 mm long at the base of the leaf; floral bract 2-3 mm long; pedicel 3 mm long; ovary 2-3.5 mm long; sepals glabrous, rose to dark purple; dorsal sepal ovate, subacute, 5 mm long, 2.5 mm wide; lateral sepals connate into a deeply concave, ovate, more or less acuminate, acute to subacute synsepal, 4.5 mm long, 4 mm wide unspread; petals purple to yellow, thick, linear, attenuate, acute, more or less sigmoid, 4.5 mm long, 1 mm wide; lip purple to yellow, transversely oblong, 1 mm long, 2 mm wide unspread, the apex broadly rounded, acutely revolute, apiculate, the sides broadly rounded with arcuate thickenings near the middle, the base revolute and attached to the base of the column; column stout, 0.5 mm long, 0.75 mm wide, the foot obsolescent.

ETYMOLOGY: From the Latin *scintillatus*, "sparkling, glittering," referring to the sparkling quality of the appearance of the inflorescence.

TYPE: *ECUADOR*: MORONA-SANTIAGO: terrestrial on road embankment, alt. 2900 m, east of the pass between Gualaceo and Limon, 17 Sept. 1980, C. Luer, J. Luer, C. H. Dodson et al. 5470 (HOLOTYPE: SEL).

ADDITIONAL MATERIAL EXAMINED: *ECUADOR*: ZAMORA-CHINCHIPE: terrestrial near the pass, alt. 2700 m, between Loja and Zamora, 21 Sept. 1980, C. Luer, J. Luer, C. H. Dodson et al. 5580 (SEL); LOJA: terrestrial on embankment, alt. 2800 m, between Loja and Zamora, 20 Nov. 1961, C. H. Dodson & L. B. Thien 1472 (SEL); AZUAY: epiphytic in trees near Lago Zorrogucho west of Cuenca, alt. 3000 m, 5 June 1958, C. H. Dodson 415 (SEL).

DISTRIBUTION: Southeastern Ecuador.

This very pretty little species may be recognized by the narrow leaves borne by much longer, slender stems. The glistening, purple inflorescence of numerous small flowers arches over the leaf. The flowers are similar to those of *P. antennifera* and its allies, but the lip is transversely oblong or dumbbell-shaped with a rounded, revolute apex.

Pleurothallis sicariopsis Luer, sp. nov.

Species haec habitu *P. sicariae* Lindl. similis, sed sepalis carnosius obtusis, petalis serratis acuminatis, labello supra medium papilloso, lobis lateralibus minoribus distinguitur.

Plant medium in size, epiphytic, shortly repent, the rhizome 3-12 mm long between secondary stems; roots coarse, flexuous. Secondary stems ascending to erect, terete basally, sharply and broadly bialate above, up to 12 mm wide at the junction with the leaf, 10-22 cm long, unifoliate, with 2-3 close, tubular sheaths near the base. Leaf thinly coriaceous, elliptical-ovate, 6-10 cm long, 2-3.2 cm wide, the subacute apex tridenticulate, the base cuneate, more or less decurrent on the wings of the secondary stem. Inflorescence a 1.5 cm long, 4- to 6-flowered raceme from a spathe 8-10 mm long at the apex of the secondary stem, up to 2 cm above the lowest margins of the leaf; floral bract 2 mm long; pedicel 1.5-2 mm long; ovary 2.5 mm long;

sepals light green, yellow to brown, more or less spotted with red-brown, fleshy, the margins glandular-cellular, the dorsal sepal obovate-oblong, obtuse, 8.5-9 mm long, 2.5-3 mm wide, the lateral sepals connate into an obtuse, obovate synsepal 7 mm long, 4-5 mm wide, forming a prominent mentum below the column-foot; petals translucent yellow, marked with purple, obovate-oblong, 5 mm long, 1 mm wide, serrate above the middle, the apex acuminate to apiculate; lip purple, oblong-ligulate, 3-lobed, 5-6 mm long, 2 mm wide, the apical half oblong, rounded, coarsely papillose, with a pair of slender, acute, antrorse, marginal, lateral lobes near the middle, the basal half truncate; column white, suffused with rose, semiterete, 3.5 mm long, with a short, thick foot.

ETYMOLOGY : Named for the similarity of the species to *P. sicaria* Lindl.

TYPE: *ECUADOR*: COTOPAXI: epiphytic in cloud forest west of El Corazon, alt. 1200 m, 18 Feb. 1979, C. Luer, J. Luer & A. Hirtz 4025 (HOLOTYPE: SEL).

ADDITIONAL MATERIAL EXAMINED : *ECUADOR*: MORONA-SANTIAGO: without exact locality, purchased from a local inhabitant, cult. at SEL, flowered 11 Feb. 1981, C. Luer 5836 (SEL); ZAMORA-CHINCHIPE: between Loja and Zamora, alt. 1500 m, 12 Oct. 1959, C. H. Dodson 21 (SEL).

DISTRIBUTION : Central and southern Ecuador.

Vegetatively this species is inseparable from *P. sicaria* which is widely distributed from Venezuela to central Ecuador. The flowers of *P. sicariopsis* are easily recognized by their fleshy texture, a prominent mentum, obtuse sepals, serrate and acuminate petals, and a papillose lip.

Pleurothallis stelidiopsis Luer, sp. nov.

Planta mediocris caespitosa, caulibus secundariis vaginatis fasciculatis quam foliis anguste linearibus brevioribus, racemo elongato dense multifloro secundo bifario folia superanti, floribus parvis glabris virescentibus, sepalo dorsali late ovato obtuso, sepalis lateralibus ovatis semiconnatis, petalis oblongis obtusis, labello ovato concavo apice obtuso cum callo submarginali, lateribus erectis basin versus obtusangulatis.

Plant medium-sized, epiphytic, densely caespitose; roots slender, flexuous. Secondary stems ascending to erect, fasciculate, unifoliate, 4-10 cm long, with a loose, tubular sheath below the middle and 1-2 loose, imbricating sheaths at the base, the outer sheath enclosing more than one stem. Leaf erect, coriaceous, narrowly elliptical to linear, 7-11.5 cm long including a petiole 1-1.5 cm long, 1-1.2 cm wide, the apex narrowly obtuse, tridenticulate, the base cuneate into the slender channeled petiole. Inflorescence an erect, densely many-flowered raceme 7-18 cm long including the 2-6 cm long peduncle, the small flowers secund in 2 rows, from a spathe 8-11 mm long near the apex of the secondary stem; floral bract 2 mm long; pedicel 1 mm long; ovary 1.5 mm long; sepals light green, more or less suffused with rose, glabrous, the dorsal sepal broadly elliptical, obtuse, apiculate, subcarinate, 2.75 mm long, 2 mm wide, the lateral sepals ovate, obtuse, apiculate, subcarinate, 2.75 mm long, 1.5 mm wide, connate to about the middle; petals purple, edged and veined in darker purple, obovate-oblong, obtuse-retuse, 1.75 mm long, 1 mm wide; lip light green, ovate, obtuse, 2 mm long, 1.5 mm wide unspread, the sides erect to the obtuse basal angles, the disc concave with a submarginal callus extending around the apex from near the middle of either side, the base transversely concave behind a low, transverse carina to accommodate the column-foot; column stout, 1 mm long, with a short, bulbous foot.

Etymology: Named for the similarity in appearance of the species to some species of *Stelis* Sw.

Type: ECUADOR: LOJA: epiphytic in cloud forest south of Yangana, alt. 2250 m, 11 May 1981, C. Luer, J. Luer, J. Kuhn, L. Kuhn & D. D'Alessandro 6169 (Holotype: SEL).

Distribution: Southern Ecuador.

Superficially, a flowering plant of this species appears very much like many species of *Stelis*. The long, slender, many-flowered raceme surpasses the long, narrow leaf borne by shorter, fasciculated secondary stems. The small, greenish flowers are distinguished by the obtuse, ovate lip with a submarginal callus ringing the apex from near the middle of each side.

Pleurothallis systemmata Luer, sp. nov.

Species haec *P. pumilae* Luer affinis, sed petalis truncatis retusis et labello bicalloso lobis lateralibus minutis in medio sulcato non bilamellato differt.

Plant small, epiphytic, densely caespitose into rounded tufts; roots slender, flexuous. Secondary stems unifoliate, abbreviated, 2-4 mm long, concealed by 2-3 loose, imbricating, ribbed, glabrous sheaths. Leaf thickly coriaceous, suborbicular, margined, 5-7 mm long including a 1 mm petiole, 5-6 mm wide, the rounded apex shallowly notched with a continuation of the midrib as an apiculum, the rounded base abruptly contracted into the petiole. Inflorescence a delicate, several(5-7)-flowered raceme 3.5-5 cm long including the filiform peduncle, 2-3 flowers open simultaneously, from a node below the leaf-stem abscission layer; floral bract 1-1.25 mm long; pedicel 3-3.5 mm long; ovary 0.75 mm long; sepals translucent yellow, glabrous, the dorsal sepal ovate, concave, carinate, 6.5 mm long, 3 mm wide, acuminate to the acute apex, the lateral sepals narrowly ovate, acute, carinate, 5.5 mm long, 1 mm wide, connate 1.5 mm, forming a short mentum beneath the column-foot; petals yellow with a brown midvein, obovate, the apex truncate-retuse, 2 mm long, 1.25 mm wide; lip red-brown, thick, ovate, 3 mm long, 1.3 mm wide, the apex rounded, with erect, minute, obtuse marginal lobes in the lower third with low, irregular calli extending forward to the middle, sulcate between; the truncate base hinged to the column-foot; column yellow, slender, semiterete, 1.75 mm long, the foot 1 mm long.

Etymology: From the Greek *systemmatos* (συστρεμματος), "aggregated into a ball," in reference to the appearance of the densely caespitose habit.

to a ball," in reference to the appearance of the densely caespitose habit.

Type: ECUADOR: LOJA: epiphytic in cloud forest south of Yangana, alt. 2250 m, 11 May 1981, C. Luer, J. Luer, J. Kuhn, L. Kuhn & D. D'Alessandro 6143 (Holotype: SEL).

Distribution: Southern Ecuador.

This little species grows with *P. pumila* to which it is closely allied. Both species form dense tufts of tiny, overlapping leaves with hair-like racemes projecting far beyond. *Pleurothallis systemmata* differs in the retuse petals and a red-brown lip with much reduced lateral lobes with an adjacent pair of calli, the space between them sulcate, not bilamellate.

Pleurothallis tropida Luer, sp. nov.

Habitu *P. foliatae* Griseb. similis sed floribus perparvis, labello obovato infra medium tricarinato et columna apice bi-alata differt.

ETYMOLOGY: From the Latin *tropis*, "a keel," referring to the carina of the lip.

TYPE: PANAMA: COCLE: epiphytic in an old orange grove in the hills above El Valle, alt. 1000 m, 2 Sept. 1976, C. Luer & H. Butcher 1120 (HOLOTYPE: SEL).

DISTRIBUTION: Panama.

In Selbyana 3:256, 1977, a new status and combination, *P. carinilabia*, were proposed for *P. broadwayi* Ames var. *tricarinata* C. Schweinf., but a previously undescribed species was mistakenly identified as this species. Therefore, a new epithet becomes necessary for the species illustrated on page 257, figure 229, and described on page. 256.

Pleurothallis tropida differs from *P. carinilabia* (*P. broadwayi* var. *tricarinata*) by possessing a prominent basal, central carina of the lip flanked by marginal thickenings toward the base. The disc of the lip of *P. carinilabia* has a pair of oblique carinae above the middle in addition to the central carina. The column of *P. tropida* is distinctly bi-alate at the apex, whereas the column of *P. carinilabia* is wingless.

Pleurothallis vasquezii Luer, sp. nov.

Planta mediocris caespitosa pendens, caulibus secundariis flaccidis folio crasso lineari-elliptico plusminusve aequilongis, racemis brevibus paucifloris, ovario nigropubescenti, sepalis viridibus anguste ovatis libris intus breviter pubescentibus, petalis obovatis trilineatis, labello spatulato arcuato tricarinato.

Plant medium in size, epiphytic, caespitose, pendent; roots slender, flexuous. Secondary stems descending, slender, flexible, unifoliate, 6-13 cm long, with a close, thin, tubular sheath below the middle and another sheath at the base. Leaf pendent, thickly coriaceous, linear-elliptical, more or less slightly curved upward, 8-13 cm long, 0.7-1.0 cm wide, the apex acute, tridentulate, the base narrowly cuneate, more or less twisted above the junction with the secondary stem. Inflorescence pendent, racemose, 1-2 flowering racemes often produced among old peduncles, 3-5 cm long including the peduncle, 3- to 6-flowered, from a fugacious spathe ca. 5 mm long at the base of the leaf; floral bract 2-2.5 mm long; pedicel 4 mm long; ovary 4 mm long, dark green with black dots and a minute black pubescence; sepals free, light green with black dots, subcarinate and glabrous externally, with a fine, short, white pubescence within above the middle, the dorsal sepal narrowly ovate, obtuse, 13 mm long, 3 mm wide, the lateral sepals narrowly ovate, slightly oblique, 12 mm long, 2.75 mm wide, the apex narrowly obtuse; petals light green, obovate-spatulate, 4 mm long, 1.5 mm wide, the rounded apex cellular-ciliate, the 3 veins purple and subcarinate externally; lip light green with a thin purple line on the margins and lateral carinae, pyriform-spatulate, 4.5 mm long, 1.5 mm wide, arcuate, the rounded apex glandular-cellular, with a pair of low carinae above the middle and a low, uncolored, central carina, the base narrowed into a claw, hinged to the column-foot; column greenish-white margined with purple, semiterete, 3.5 mm long, the foot 2 mm long, dotted with purple.

ETYMOLOGY: Named in honor of Roberto Vásquez Ch. of Cochabamba, Bolivia, illustrator of the *Orchids of Bolivia*, who discovered this species.

TYPE: BOLIVIA: LA PAZ: Prov. of Inquisivi, epiphytic in cloud forest between Inquisivi and Circuata, alt. 2550 m, 29 Jan. 1981, cult. at SEL, 81-524, flowered 5 March 1981, C. Luer, J. Luer, E. Besse and R. Vásquez 5971 (HOLOTYPE: SEL).

DISTRIBUTION: Bolivia.

The comparatively heavy, thick, narrow leaves hang from flexible sec-

ondary stems, and the short racemes of rather large, light green flowers are also pendent. Except for the color, the flowers are very similar to those of *P. brittonii* Rolfe, but the latter is an erect plant with erect racemes longer than the leaves.

Pleurothallis viduata Luer, sp. nov.

Planta mediocris caespitosa doctrina habitationis viduata, caulibus secundariis acute ancipituis foliis ovatis decurrentibus longioribus, floribus albis successivis fasciculatis longipedicellatis, sepalo dorsali synsepaloque ovatis acutis similibus, petalis obliquis cum macula purpurea pubescenti, labello atropurpureo suborbiculato columna semitereti apoda multiminore.

Plant medium-sized, epiphytic, caespitose; roots slender, flexuous. Secondary stems erect, sharply ancipitous, terete below, 7-18 cm long, 6 mm deep above, unifoliate, with 2-3 tubular sheaths above the base. Leaf erect, coriaceous, ovate, 7-9 cm long, 3-4.5 cm wide, the apex acute, tridenticulate, the rounded base decurrent on the secondary stem for 0.8-2 cm. Inflorescence a succession of solitary, long-pedicellate flowers borne in a fascicle from the apex of the secondary stem well above the lower margins of the leaf; spathe 5-6 mm long; peduncles 2.5-3.5 cm long; floral bracts 7-8 mm long, pedicels 4.5-5 cm long; ovary 3 mm long; sepals white, lightly marked with purple, lightly subverrucose externally, the dorsal sepal ovate, acute, 12 mm long, 5 mm wide, the lateral sepals connate into an ovate, acute synsepal 11 mm long, 5.5 mm wide; petals white, glandular-cellular, with an irregular patch of purple, microscopic pubescence on the lower, inner third, ovate, oblique, acute, 9 mm long, 2.5 mm wide; lip maroon, minute, suborbicular, 1 mm long, 1 mm wide, the rounded margins thick, the disc with a thick, rounded, bilobed callus, the truncate base hinged to the base of the column; column white, mottled with rose, semiterete, 2 mm long, the anther and stigma apical, without a foot.

ETYMOLOGY : From the Latin *viduatus*, "lost, deprived," in allusion to the missing collection data.

TYPE : ECUADOR: without locality, cultivated at SEL, flowered in cult. 12 Nov. 1980 C. Luer 5596 (HOLOTYPE : SEL).

DISTRIBUTION : Ecuador.

This interesting relative of *P. crocodiliceps* Rchb. f. was collected in Ecuador two or three years ago and has been in cultivation at SEL. The plant now flowers repeatedly, but unfortunately, the label with the collection data has been lost. The most likely source of the plant is the eastern slopes of the Andes. Perhaps we shall find it again some day.

Pleurothallis yanganensis Luer, sp. nov.

Planta parva caespitosa, caulibus secundariis gracilibus vaginis lepanthiformibus, racemo paucifloro foliis ellipticis longiore, sepalis aurantiacis brunneo nervatis, sepalo dorsali ovato concavo breviter acuminato, lateralibus anguste ovatis acutis semiconnatis, petalis oblongis truncatis, labello ovato truncato unguiculato marginibus infra medium incrassatis.

Plant small, epiphytic, caespitose; roots slender, flexuous. Secondary stems unifoliate, slender, 2-4.5 cm long, enclosed by 2-4 close, ribbed sheaths dilated above, the ribs and margins minutely ciliate. Leaf erect, coriaceous, elliptical, 15-20 mm long including a 1 mm long petiole, 5 mm wide, the acute apex tridenticulate, cuneate below into the petiole. Inflorescence a 2- to 5-flowered raceme 1-3 cm long including the capillary peduncle, from a

node below the leaf-stem abscission layer; floral bract oblique, acute, 2.5 mm long; pedicel 1.5-2 mm long; ovary 0.75 mm long; sepals translucent yellow-orange with brown veins, glabrous, the dorsal sepal ovate, concave, carinate, shortly acuminate, acute, 8 mm long, 4.5 mm wide expanded, the lateral sepals narrowly ovate, acute, 7 mm long, connate to near the middle, 3 mm wide together; petals translucent pale orange with a brown midvein, oblong, truncate, 2.5 mm long, 1 mm wide; lip suffused with brown, ovate, the apex truncate, the base unguiculate, the sides below the middle elevated and thickened, 4 mm long, 1.75 mm wide; column slender, semiterete, 2.75 mm long, the foot 1 mm long.

Etymology: Named for the village of Yangana in the vicinity of the forest where the species was discovered.

Type: *ECUADOR*: LOJA: epiphytic in cloud forest south of Yangana, alt. 2550 m, 11 May 1981, C. Luer, J. Luer, J. Kuhn, L. Kuhn & D. D'Alessandro 6150 (Holotype: SEL).

Distribution: Southern Ecuador.

This little species may be distinguished from its numerous, leplantiform-stemmed relatives by the few-flowered racemes of comparatively large, orange flowers with brown veins; the broad, shortly acuminate dorsal sepal much wider than the combined lateral sepals which are semiconnate; and the truncate petals and truncate lip with thickened margins below the middle.

Scaphosepalum ophidion Luer, sp. nov.

Planta mediocris grandisve caespitosa, pedunculo ascendenti descendente gracili glabro foliis ellipticis longipetiolatis brevior vel subaequilongis, floribus parvis successivis guttatis racemo densifloro flexuoso, sepalo impari clavato, synsepalo concavo bifurcato pulvinis parvis caudis spiculatis brevibus, petalis ovatis obliquis apiculatis, labello subpandurato bicristato, lobo antico obovato, lobis lateralibus obtusis basi truncato.

Plant medium to large in size, epiphytic, caespitose; roots slender, flexuous. Secondary stems slender, erect, unifoliate, 2.5-5 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, thinly coriaceous, elliptical, long-petiolate, 8-21 cm long including the 4-9 cm long petiole, 2-4 cm wide, the apex acute, tridentate, the base cuneate into the channeled petiole. Inflorescence an erect, ascending or descending, gradually lengthening, fractiflex, successively closely-flowered raceme of small flowers, 7-20 cm long including the slender, glabrous, distinctly bracted peduncle, from a node low on the secondary stem; floral bract slender, acute, 4-5 mm long; pedicel 4-5 mm long; ovary green with purple spots, 3.5-5 mm long; sepals and petals light yellow or light green, spotted with purple, glabrous; middle sepal ovate, tricarinate, concave below the middle, clavate above the middle with the sides reflexed and suffused with purple, the obtuse apex apiculate, 6-8 mm long, 2-3 mm wide; lateral sepals connate into a more or less ovate, bifid, quadricarinate, concave synsepal 5-6 mm long, 5-7 mm wide expanded, the cushions subtriangular, 2-3 mm long, 1.5 mm wide, the acute apices contracted into shortly spiculate tails 3-4.5 mm long; petals ovate, oblique, 2.5 mm long, 1.5 mm wide, narrowly truncate at the apex, apiculate, the labellar margin dilated; lip orange, marked with red-purple, trilobed-pandurate, arcuate, 2.5 mm long, 1 mm wide, the apical lobe obovate, rounded at the apex and minutely serrulate, the lateral lobes obtuse, the disc bicristate near the middle, the truncate base hinged to the column-foot; column green, spotted with purple, arcuate, semiterete, 3 mm long, longitudinally winged above the middle, the apex denticulate, the thick foot 1.5 mm long.

ETYMOLOGY: From the Greek *ophidion*, (*οφιδιον*), "a little snake," in allusion to the appearance of the flower with bared fangs.

TYPE: *ECUADOR*: PICHINCHA: epiphytic in cloud forest above Mindo, western slopes of the Andes, alt. 2200 m, 15 Oct, 1979, A. Hirtz & A. Andretta s.n., *C. Luer* 4318 (HOLOTYPE: SEL); same area, 11 Nov. 1979, *C. Luer*, *J. Luer* & *A. Hirtz* 4747 (SEL).

ADDITIONAL MATERIAL SEEN: *ECUADOR*: CARCHI: epiphytic in cloud forest above Maldonado, alt. 2500 m, W. Teague, s.n., cultivated in San Francisco, Calif., flowered in cult. 19 Aug. 1979, *C. Luer* 4108 (SEL); *COLOMBIA*: NARIÑO: epiphytic in cloud forest above Ricuarte, alt. 1600 m, 3 Nov. 1979, *C. Luer*, *J. Luer*, *K. Walter* & *A. Hirtz* 4607 (SEL); without locality, cultivated by Amalia Lehmann de Sarria in Popayan, flowered in cult. 25 July 1978, *C. Luer* 3011 (SEL).

DISTRIBUTION: Southwestern Colombia and northwestern Ecuador.

Although vegetatively this species resembles *S. swertiaefolium* (Rchb. f.) Rolfe, the small flowers are more similar to those of Central American species: short sepaline tails, a clavate middle sepal, and a pandurate lip.

Scaphosepalum tiaratum Luer, sp. nov.

Planta grandis caespitosa, pedunculo crasso verrucosissimo foliis anguste ellipticis longipetiolatis multilongiore, floribus successivis purpureo guttatis verrucosis, ovario verrucoso, sepalis impari clavato, synsepalis supero suborbiculato superne saccato cum caudis aequilongis et pulvinis parvis, petalis dolabriformibus, labello panduriformi bicristato et columna prope medium acute alata.

Plant medium to large in size, presumably epiphytic, caespitose; roots slender, flexuous. Secondary stems stout, erect, unifoliate, 2-3 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, coriaceous, narrowly elliptical, long-petiolate, 12-20 cm long including the 4-7 cm long petiole, 1.7-2.3 cm wide, the acute apex tridenticulate, the base narrowly cuneate into the petiole. Inflorescence an erect, gradually lengthening raceme of successive flowers, up to 30 cm or more tall including the stout, markedly verrucose, sparsely bracted peduncle, from a node low on the secondary stem; floral bract oblong, elongated, acute, verrucose, 7-9 mm long; pedicel verrucose, 7-10 mm long; ovary markedly verrucose, 8 mm long; sepals fleshy-rigid, verrucose externally, light green, suffused and spotted with purple; middle sepal ovate, concave below the middle, tricarinate, contracted near the middle, clavate above the middle with the sides revolute, the obtuse apex uncinately-apiculate; lateral sepals connate into a concave, suborbicular synsepal 10 mm long, 10 mm wide unspread, the margins minutely ciliate, connate to form a well-demarcated, saccate "turban" above the column-foot, the rounded apices abruptly contracted into diverging, verrucose tails 12 mm long, the cushions comparatively small, narrowly triangular, amber-colored, each 5 mm long, 2.5 mm wide; petals yellow, spotted with purple, irregularly ovate, 5 mm long, 3 mm wide, the apex obliquely apiculate, the labellar margin dilated; lip greenish white, heavily suffused with purple below the middle, pandurate-trilobed, arcuate, 4 mm long, 2 mm wide, the apical lobe suborbicular, dotted with purple, denticulate, the lateral lobes subacute, denticulate, the disc with a tall, parallel pair of serrated crests near the middle, the truncate base bilobulate, hinged to the column-foot; column purple, arcuate, semiterete, 5 mm long, longitudinally winged above acutely angled wings near the middle, the apex lacerate, the thick foot 3 mm long.

ETYMOLOGY : From the Latin *tiaratus*, "turbaned," in allusion to the appearance of the uppermost synsepal.

TYPE: *COLOMBIA*: without locality, imported from Colombia by Broersma in the Netherlands, cultivated by B. Wuerstle in Fuerstenfeldbruck, Germany, flowered in cult. 20 May 1980, *C. Luer* 5255 (HOLOTYPE: SEL).

DISTRIBUTION : Colombia.

This large species, similar to *S. pulvinare* (Rchb. f.) Rolfe and its relatives, may be distinguished by the markedly verrucose ovary, the clavate middle sepal, the posteriorly saccate synsepal, the tall crests of the lip, and the acutely angled wings of the column.

Stelis acicularis Luer, sp. nov.

Planta mediocris caespitosa, caulibus secundariis foliis ellipticis brevioribus, racemo gracili elongato laxe plurifloro, floribus parvis, sepalis similibus patentibus alboviridentibus roseo suffusis ovatis obtusis breviter pubescentibus, petalis transverse oblongis apice incrassatis, labello crasso transverse oblongo apice rotundato apiculo aciculari, columna crassa lobis stigmaticis confluentibus.

Plant medium in size, epiphytic, shortly scandent to caespitose. roots slender, flexuous. Secondary stems erect, unifoliate, 2-4 cm long, enclosed by a brown, tubular sheath and a shorter sheath below. Leaf erect, coriaceous, elliptical, 5-7 cm long including the 0.5-1 cm long petiole, 1.5-2 cm wide, the apex subacute, tridenticulate, cuneate below into the petiole. Inflorescence a slender, erect, distichous, loosely-flowered, subflexuous raceme 15-20 cm long including the peduncle ca. 8 cm long, from a short spathe near the apex of the secondary stem; floral bract thin, 1.5 mm long; pedicel 1.5 mm long; ovary 2 mm long; sepals similar, widespreading, greenish white, suffused with rose centrally, shortly pubescent, broadly ovate, obtuse, the dorsal sepal 2 mm long, 2.2 mm wide, the lateral sepals 2 mm long, 2 mm wide, all sepals 3-veined, connate basally; petals greenish white, suffused with rose at the apex, transversely oblong, the apical margin broadly rounded, thickened, 0.6 mm long, 0.9 mm wide; lip rose, thick, transversely oblong, 0.5 mm long, 0.6 mm wide, shallowly concave anteriorly, the apex broadly rounded, with a very slender apiculum directed forward beneath the rostellum, the disc callous-thickened, with a shallow, longitudinal groove curving forward over the callus as the glenion, the base truncate; column stout, 0.5 mm long, 0.5 mm wide, the anther cap proportionately large, the stigmatic lobes confluent.

ETYMOLOGY . From the Latin *acicularis*, "with a needle-like point," referring to the apiculum of the lip.

TYPE: *ECUADOR*: MANABI: epiphytic in forest on Cerro Monticristi, alt. ca. 500 m, 27 Feb. 1977, cult. at SEL, 77-2663, flowered in cult. 9 Sept. 1977, *C. Luer, J. Luer & K. Cordoba* 1828 (HOLOTYPE: SEL).

DISTRIBUTION . Western Ecuador.

This species is remarkable in the needle-like apiculum which projects from the rounded apex of the lip under the rostellar flap above. The stigmatic lobes are confluent centrally.

Stelis butcheri Luer, sp. nov.

Planta grandis caespitosa, caulibus secundariis robustis folio elliptico acuto longioribus, racemo longissimo dense multifloro subflexuoso usque 70 cm longo, floribus plus minusve decem simul apertis pallide flavovires-

centibus pilis niveis, sepalis late ovatis obtusis similibus patentibus dense ciliatis, petalis transverse ovatis apice crassissimis rotundatis, labello crasso subquadrato apice rotundato breviter obtuse apiculato.

Plant large, epiphytic, caespitose; roots coarse, flexuous. Secondary stems erect, stout, unifoliate, 25-33 cm long, with a loose, tubular sheath near the middle and 2 other sheaths at the base. Leaf erect, coriaceous, longitudinally veined, elliptical, 12-15 cm long including a 1.5 cm long petiole, 4-6 cm wide, the apex acute, tridenticulate, the base cuneate into the channeled petiole. Inflorescence racemose, 1-2 erect, progressively lengthening, densely many-flowered, subflexuous racemes 30-70 cm long, with 8-12 relatively large, all yellow-green open simultaneously, from a spathe 1.5-2 cm long at the base of the leaf; floral bract oblique, acute, 4-6 mm long; pedicel 3-5 mm long; ovary 2-3 mm long; sepals similar, widespread, glabrous except for the densely white-ciliate margins, broadly ovate, obtuse, the dorsal sepal 4 mm long, 4.5 mm wide, the lateral sepals 3 mm long, 3.5 mm wide, connate basally; petals transversely ovate, markedly thickened and widened at the broadly rounded apex, cellular-glandular, 1.5 mm long, 2 mm wide; lip thick, subquadrate, 1 mm long, 1 mm wide, shallowly concave anteriorly, the apex broadly rounded with a short, obtuse apiculum, the disc callous-thickened with a glenion anteriorly, the truncate base hinged to the base of the column; column stout, 1 mm long, 1 mm wide, the stigmatic lobes diverging to either side of the rostellar flap.

ETYMOLOGY: Named in honor of Henry Butcher of Volcán, Chiriquí, Panamá, avid orchid enthusiast, who discovered this species.

TYPE: PANAMA. CHIRIQUI: epiphytic in cloud forest above Guadalupe, alt. ca. 2000 m, 1 Sept. 1976, H. Butcher, s.n., *C. Luer 1101* (HOLOTYPE: SEL); same area, 13 Sept. 1976, *C. Luer & H. Butcher 1204* (SEL).

DISTRIBUTION: Western Panama.

This huge, showy species is remarkable in the gradually lengthening raceme of relatively large, yellow-green flowers with densely ciliated margins, the hairs being white. About ten closely packed flowers are open simultaneously as the lower ones fade and the upper ones mature. Some plants reach a height of one meter.

Stelis cauda-equina Luer & Vásquez, sp. nov.

Planta magna pendens breviter repens, foliis anguste linearibus canovirescentibus caulibus secundariis flexibilibus aequilongis, vaginis pubescentibus, racemis multifloris foliis brevioribus, sepalis parvis similibus roseis pubescentibus ovatis obtusis convexis, petalis tenuibus transverse oblongis, labello apice transverse concavo apiculato disco crasso callo bilobato, stigmatibus bilobato.

Plant large, epiphytic, shortly repent to caespitose, pendent; roots slender, flexuous. Secondary stems descending, slender, flexible, 10-20 cm long, enclosed by a glabrous, tubular sheath above the middle and 2-3 imbricating, densely pubescent sheaths at the base. Leaf pendent, dull gray-green, coriaceous, narrowly linear-elliptical, 15-22 cm long, 1.2-1.6 cm wide, the acute apex tridenticulate, gradually narrowed to the base. Inflorescence racemose, 1-3 pendent, densely many-flowered racemes produced among numerous old rachises, flowering nearly to the base, 6-15 cm long, from a spathe 15-18 mm long at the base of the leaf; floral bract oblique, infundibular, 2-3 mm long; pedicel 2 mm long; ovary 1.5 mm long; sepals similar, rose, shortly pubescent within, ovate, obtuse, convex, 2.5 mm long, 2.5 mm wide, 3-veined, widespread, free except at the base; petals transversely oblong, thin, concave, 1 mm

long, 1.4 mm wide, the transversely obtuse apex minutely apiculate; lip rose, obovate, 1.25 mm long, 1.1 mm wide, the apical portion transversely oblong, thin, concave, the incurved margin with a minute apiculum, callous-thickened and bilobed from above the middle to the truncate base; column stout, 1 mm long, 1.25 mm wide, the stigma bilobed.

ETYMOLOGY: From the Latin *cauda equina*, "a horsetail," in allusion to the appearance of the plant.

TYPE. *BOLIVIA*: LA PAZ: Sud Yungas, epiphytic in scrubby cloud forest above Unduavi, alt. 3200 m, 28 Jan. 1980, C. Luer, J. Luer, R. Vásquez & R. Lara 4992 (HOLOTYPE: SEL).

DISTRIBUTION: Bolivia.

The rhizome of this species is shortly creeping, but the great masses of pendent, long, narrow, gray-green leaves and stems produce a spectacular plant. The basal cauline sheaths are densely pubescent. Numerous many-flowered racemes, shorter than the leaves, hang among the leaves. The small flowers are sparkling rose with similar, obtuse sepals, and concave, apiculate petals and lip.

Stelis cubicularia Luer & Vásquez, sp. nov.

Planta parva dense caespitosa, foliis anguste ellipticis caulibus secundariis subaequilongis, racemis binis duplo longioribus bifariis, floribus parvis flavis glabris, sepalo dorsali ovato, synsepalo ovato obtuso profunde concavo, petalis oblongis apice rotundatis concavis, labello ovato concavo apice acuto incurvo.

Plant small, epiphytic, densely caespitose, roots slender, fasciculate. Secondary stems slender, approximate, erect, unifoliate, 5-7 cm long, with a tubular sheath from below the middle and 2 other tubular sheaths near the base. Leaf erect, coriaceous, narrowly elliptical, 4-5.5 cm long, 6-8 mm wide, the apex acute, tridenticulate, the base narrowly cuneate into a petiole 0.5-1 cm long. Inflorescence racemose, 2 (occasionally 1) slender, erect, densely many-flowered racemes 6-10 cm long including a peduncle 2-3 cm long, from a fugacious spathe 8-9 mm long near the apex of the secondary stem; floral bract oblique, acute, 2 mm long; pedicel and ovary each 1 mm long; flowers small, yellow, glabrous, held perpendicular to the rachis in 2 rows; dorsal sepal ovate, narrowly obtuse, apiculate, 2.3 mm long, 1.5 mm wide, 3-veined; lateral sepals connate to near the apex into a deeply concave, ovate synsepal, the apex rounded, minutely cleft, 2 mm long, 1.5 mm wide unspread; petals oblong, 0.75 mm long, 0.5 mm wide, the apex rounded, smooth, thickened, concave; lip ovate, 0.9 mm long, 0.75 mm wide, the rounded basal angles more or less lobulate, broadly concave from the transverse callus above the base to the acute, incurved apex, the dorsum flat to the truncate base; column stout, 0.5 mm long, with a protruding rostellar flap, the stigma bilobed.

Etymology: From the Latin *cubicularius*, "like a bedchamber," in allusion to the concave synsepal nearly filled with the central apparatus.

Type: *BOLIVIA*: LA PAZ: Prov. of La Paz, epiphytic in cloud forest along the Río Zongo, alt. 2600 m, 27 Jan. 1980, C. Luer, J. Luer, R. Vásquez & R. Lara 4968 (Holotype: SEL).

Distribution: Bolivia.

This little species with its small flowers held transversely closely together in two rows is most remarkable in the deeply concave synsepal nearly filled with the petals, lip and column.

Stelis debilis Luer, sp. nov.

Planta parva scandens debilis, foliis ellipticis caulibus secundariis brevibus longioribus, racemo laxo paucifloro folium duplo superanti, floribus flavis perparvis, sepalis ovatis subacutis, petalis hastatis apice inscissatis, labello crasso hastato apice rotundato.

Plant small, epiphytic, scandent, weak, the primary stem slender, flexuous, 5-13 mm long between secondary stems, with 2-3 loose, tubular sheaths; roots slender, flexuous. Secondary stems ascending, suberect, 8-15 mm long, enclosed by 2 loose, imbricating, tubular sheaths. Leaf suberect, elliptical, coriaceous, 15-25 mm long including the 5-7 mm long petiole, 5-6 mm wide, the subacute apex tridenticulate, the base cuneate into the slender petiole. Inflorescence a weak, suberect, loosely few-flowered raceme 4 cm long including the capillary peduncle ca. 2 cm long, from a node near the apex of the secondary stem; floral bract 1 mm long; pedicel 1 mm long; ovary 0.5 mm long; sepals similar, yellow, glandular-cellular within, ovate, subacute, connate basally, the dorsal sepal 1.75 mm long, 1.75 mm wide, 3-veined, the laterals oblique, 1.5 mm long, 1.5 mm wide; petals triangular-hastate, 0.6 mm long, 0.75 mm wide, the subacute apex thickened, the margin flattened, with silver particles; lip thick, triangular-subhastate, 0.6 mm long, 0.6 mm wide, 0.3 mm deep, narrowed to the rounded apex, the anterior surface slightly concave, the dorsum with a low, rounded callus continuing forward across the central callus as the glenion; column stout, 0.5 mm long, 0.75 mm wide across the bilobed stigma.

Etymology: From the Latin *debilis*, "weak," referring to the habit of the plant.

Type: ECUADOR: MORONA-SANTIAGO: epiphytic in rain forest near Río Calagras, alt. 1600 m, 19 Sept. 1980, C. Luer, J. Luer, C. Dodson, A. Andreetta et al. 5486 (Holotype: SEL).

Distribution: Southeastern Ecuador.

This weak, little species is characterized by the thin, flexible rhizome bearing at intervals short, slender stems. The little, elliptical leaves are surpassed by the few-flowered raceme borne by a hair-like peduncle. The yellow sepals are cellular-pubescent within and the petals and lip are more or less hastate in shape.

Stelis dressleri Luer, sp. nov.

Species haec *S. morganii* Dodson & Garay persimilis sed sepalis glabris, petalis labelloque breviter pubescentibus et labello minute apiculato differt.

Plant small to medium in size, epiphytic, shortly scandent, the rhizome erect, concealed by loose, tubular sheaths, 1-2 cm long between secondary stems. Secondary stems erect, unifoliate, 2-2.5 cm long, enclosed by 2 brown, loose, tubular sheaths. Leaf erect, coriaceous, ovate-oblong, 3-5.4 cm long including a 0.5-1 cm long, twisted petiole, 1.5-2 cm wide, the apex subacute to rounded, tridenticulate, the base more or less abruptly rounded above the petiole. Inflorescence racemose, 1-2 short, distichous, densely many-flowered racemes borne along the back surface of the leaf; floral bract thin, inflated, 1.5 mm long, enclosing the pedicel 1 mm long and the ovary 0.5 mm long; sepals glabrous, greenish white, transversely ovate, widely spread into a flat, suborbicular flower, each ca. 1.1 mm long, 2.1 mm wide, the apices obtuse, the bases connate below the middle; petals greenish white, transversely obovate, obtuse, 0.6 mm long, 0.8 mm wide, the thickened margin well demarcated, shortly pubescent; lip cream, suffused with rose centrally, thick, transversely ovate, 0.5 mm long, 0.5 mm wide, with a transverse thickening across

the middle, shallowly concave above the middle, glandular-cellular to minutely ciliate, the apex rounded with a short, obtuse apiculum, the disc with a low callus above the base continuous with a well-developed glenion over the transverse thickening; column stout, 0.5 mm long, 0.5 mm wide, the stigma with 2 small, red lobes.

ETYMOLOGY : Named in honor of Robert L. Dressler of the Smithsonian Tropical Research Institute, co-discoverer of the species.

TYPE : PANAMA : VERAGUAS : epiphytic in cloud forest above Santa Fe, alt. ca. 700 m, 5 Sept. 1976, C. Luer & R. L. Dressler 1146 (HOLOTYPE : SEL).

DISTRIBUTION : Panama.

This plant was cited in *Icones Plantarum* as *S. morganii* occurring in Panama, but, although the two species are inseparable vegetatively, the glabrous sepals, pubescent petals, and minutely apiculate lip immediately distinguish *S. dressleri*.

Stelis elegans Luer & Vásquez, sp. nov.

Planta grandis, rhizomate crasso breviter repenti, caulibus secundariis foliis subaequilongis, racemo longissimo dense multifloro bifario, floribus flavis mediocris rotundatis, sepalis similibus ovatis obtusis pubescentibus, marginibus recurvatis, petalis transverse oblongis, labello transverse oblongo apice rotundato apiculato disco bicalloso basin versus pubescenti.

Plant large, epiphytic, the rhizome stout, branching, ascending, shortly repent, 0.5-2 cm long between secondary stems; roots slender, flexuous. Secondary stems ascending to erect, 6-9 cm long, enclosed by 3 imbricating, tubular sheaths. Leaf erect, coriaceous, narrowly elliptical, 7-12 cm long, 1.5-2.3 cm wide, the subacute apex tridenticulate, the base narrowly cuneate into a petiole 1-1.5 cm long. Inflorescence a slender, erect, densely many-flowered, distichous raceme 15-25 cm long including the peduncle 8-10 cm long, from a spathe 12-22 mm long near the apex of the secondary stem; floral bract oblique, acute, 4 mm long; pedicel 1 mm long, ovary 1.5 mm long; flowers yellow, rounded in outline; sepals similar, ovate, obtuse, shortly pubescent, the margins recurved, 3-veined, the dorsal sepal 3.25 mm long, 2.75 mm wide, the laterals 2.75 mm long and wide, connate basally; petals transversely oblong, 1 mm long, 1.6 mm wide, thickened above the middle, the apex broadly obtuse to truncate, the 3 veins prominent externally; lip thick, transversely oblong, 1 mm long, 1.2 mm wide, 0.5 mm thick, the apex broadly rounded with a small, obtuse apiculum, the disc mostly filled by a bilobed callous thickening, rounded and pubescent on top toward the truncate base; column stout, the stigma bilobed.

Etymology: From the Latin *elegans*, "elegant," referring to the handsome quality of the plant.

TYPE : BOLIVIA : LA PAZ : Prov. of La Paz, epiphytic in cloud forest along the Río Zongo, alt. 2600 m, 27 Jan. 1980, C. Luer, J. Luer, R. Vásquez & R. Lara 4966 (Holotype : SEL).

Distribution : Bolivia.

This large, handsome species may be recognized by the long raceme of rounded, yellow, pubescent flowers in two close rows. The sepals are reflexed, the petals and lip are transversely oblong, and the disc of the lip is filled with a pair of rounded, pubescent calli.

Stelis fasciculata Luer, sp. nov.

Species haec *S. mononeurae* Lindl. similis sed habitu dense fasciculato, sepalis trinervatis et petalis oblongis apice rotundatis concavis non scabris differt.

Plant medium-sized, epiphytic to terrestrial, densely caespitose; roots slender, densely fasciculate. Secondary stems slender, erect, approximate, unifoliate, 9-17 cm long, with a close, tubular sheath from near the middle plus 2 others below. Leaf erect, coriaceous, narrowly elliptical, 5-7 cm long including the petiole ca. 1 cm long, 1.2-1.5 cm wide, the acute apex tridenticulate, the base narrowly cuneate into the petiole. Inflorescence racemose, 3-6 erect, densely many-flowered, simultaneous racemes 6-10 cm long from a 5-6 mm long spathe near the apex of the secondary stem; floral bract oblique, 3 mm long; pedicel 2 mm long; ovary 1 mm long; sepals light green, pubescent within, ovate, 3-nerved, the apices obtuse to rounded, the dorsal sepal 2.25 mm long, 1.25 mm wide, the lateral sepals 2 mm long, 1.3 mm wide, connate only at the base, the laterals held forward in the natural position; petals oblong-obovate, 0.8 mm long, 0.5 mm wide, the thickened apex rounded, smooth, concave; lip thick, subpentagonal, 0.6 mm long, 0.5 mm wide, 0.4 mm thick, the apex obtuse, the anterior surface concave below a cleft, transverse bridge, with a rounded callus on top at the base; column stout, the stigma bilobed.

Etymology. From the Latin *fasciculatus*, "growing in bundles," referring to the fasciculated secondary stems and racemes.

Type: *ECUADOR*: NAPO: terrestrial on the road embankment below Papallacta, alt. 2770 m, 15 May 1981, C. Luer, J. Luer, J. Kuhn & L. Kuhn 6230 (Holotype: SEL).

Distribution: Eastern Ecuador.

This species is similar to *S. mononeura*, but *S. fasciculata* differs in the fasciculate habit, the three-nerved sepals, and the oblong petals (longer than wide) with a smooth, rounded, concave apex. The lips of the two species are basically similar.

Stelis hirtella (Garay) Luer, comb. nov.

Stelis hirta Lindl., Folia Orchid. Stelis 3. 1858, not J. E. Smith 1816.

Apatostelis hirtella Garay, Bot. Mus. Leafl. 27: 189. June 1980.

Stelis loculifera Luer, sp. nov.

Planta mediocris grandisve caespitosa, caulibus secundariis foliis ellipticis acutis longipetiolatis longioribus, racemo longissimo disticho dense multifloro, floribus purpureis, sepalis similibus ovatis obtusis non patentibus basi-bus in loculum brevem connatis intus breviter pubescentibus, petalis flabellatis, labello subquadrato apice subacuto disco transverse incrassato supra basin callo bilobato, columna brevi lobis stigmatibus confluentibus.

Plant medium to large in size, epiphytic, caespitose; roots numerous, fine, flexuous. Secondary stems slender, erect, unifoliate, 8-14 cm long, with a loose, tubular sheath near the middle and 1-2 other sheaths at the base. Leaf erect, coriaceous, elliptical, long-petiolate, the petioles slender, 2.5-3.5 cm long, the blade 6-8 cm long, 1.8-2.5 cm wide, the apex acute, tridenticulate, cuneate below into the petiole. Inflorescence an erect, densely many-flowered, distichous raceme 20-28 cm long including the peduncle ca. 5 cm long, from a spathe 12-15 mm long near the apex of the secondary stem; flo-

ral bract 2-3 mm long; pedicel sharply angled, 1.5 mm long; ovary 1 mm long; sepals purple, similar, not widely spread, minutely glandular-pubescent within, ovate, obtuse, the dorsal sepal 4 mm long, 3 mm wide, the lateral sepals 3 mm long, 2.5 mm wide, connate basally to form a short, rounded, sepaline tube; petals flabellate, 0.6 mm long, 0.8 mm wide, the apex broadly truncate with a thickened margin; lip thickly subquadrate, triangular in the lateral view, 0.6 mm long, 0.5 mm wide, the apex subacute, more or less incurved, the disc transversely fleshy-thickened, protruding slightly from the non-concave anterior surface, with a low, bilobed callus on top near the base, shallowly cleft between, continuing anteriorly as the glenion; column stout, 0.5 mm long, 0.5 mm wide, the stigmatic lobes confluent centrally.

ETYMOLOGY. From the Latin *loculus*, "a small cavity," and *-fer*, "-bearing," referring to the small sepaline tube.

TYPE: PANAMA: CHIRIQUI: epiphytic in cloud forest on Cerro Colorado above Camp Escopeta, alt. 1700 m, Feb. 1977, cult. at SEL, 77-1901, flowered in cult. 4 May 1977, C. Luer, J. Luer & R. L. Dressler 1614 (HOLOTYPE: SEL).

DISTRIBUTION: Western Panama.

This species may be recognized by the slender secondary stems longer than the long-petiolate leaves; a very long, many-flowered raceme of purple flowers; similar, non-spreading sepals connate basally into a short sepaline tube filled with the remaining floral parts; flabellate petals; a thick, subquadrate lip with a bilobed callus on top; and a column with centrally confluent stigmatic lobes.

Stelis maloi Luer, sp. nov.

Planta parvula caespitosa, racemo paucifloro foliis ellipticis longiore, sepalis similibus atropurpureis late ovatis obtusis basin versus in cupulam connatis, petalis flavis orbicularibus membranaceis, labello flavo oblongo concavo cum callo basali transversali crassissimo verruculoso.

Plant small, epiphytic, caespitose; roots slender, flexuous. Secondary stems slender, unifoliate, 5-10 mm long, enclosed by 2 loose, imbricating, tubular sheaths. Leaf erect, coriaceous, elliptical-obovate, 15-22 mm long including the petiole ca. 5 mm long, 5-7 mm wide, the apex subacute, tridentate, the base cuneate into the slender petiole. Inflorescence a loose, few-flowered raceme 2.5-3.5 cm long including the filiform peduncle, from a node on the secondary stem; floral bract 1.5 mm long; pedicel 1 mm long; ovary purple, 1 mm long; sepals similar, dark purple externally, dull purple within, glabrous, broadly ovate, obtuse, 2 mm long, the dorsal 1.75 mm wide, the laterals 1.5 mm wide, all connate basally to form a cup; petals translucent light yellow, orbicular, shallowly concave, membranous, 1.1 mm long, 1.1 mm wide; lip light yellow, thick, oblong, concave, the apex rounded, 1.1 mm long, 1.1 mm wide, with a thick, minutely verrucose, transverse, basal callus across the lower third, fringed on the basal margins; column stout, 0.5 mm long and broad.

Etymology: Named in honor of Benigno Malo of Cuenca, Ecuador, who discovered and cultivated this species.

Type: ECUADOR. ZAMORA-CHINCHIPE: epiphyte in cloud forest between Loja and Zamora, alt. ca. 1500 m, collected and cultivated by B. Malo at Tarqui, flowered in cult. 5 May 1981, C. Luer 6095 (Holotype: (SEL)).

Distribution: Southern Ecuador

This little species may be recognized by the small, dark purple sepals connate basally into a sepaline cup from which the light yellow, rounded, membranous petals protrude. The lip is concave in front of a thick, transverse, basal callus.

Stelis megalocephala Luer, sp. nov.

Planta pusilla caespitosa, vaginis caulium secundariorum duobus imbricatis costatis minute scaberulis, racemo paucifloro folio elliptico brevior, floribus purpureis pro planta grandibus, sepalo dorsali orbiculari sepalis lateralibus ovatis obtusis majore, petalis transverse ovatis apice incrassatis, labello transverse oblongo apice rotundato disco transverse incrassato callo parvo pubescenti supra basin.

Plant small, epiphytic, caespitose; roots slender, flexuous. Secondary stems unifoliate, abbreviated, 3-8 mm long, enclosed by 2 loose, imbricating, tubular, ribbed sheaths, slightly more inflated toward the apex, microscopically scabrous on the ribs and margins of the ostium. Leaf erect, coriaceous, elliptical, 10-20 mm long including the 3-4 mm long petiole, 5-8 mm wide, the apex obtuse, tridenticulate, the base cuneate into the petiole. Inflorescence a lax raceme, up to 12 mm long, of 2-4 successive, comparatively large, purple, glabrous flowers, from a node near the apex of the secondary stem; floral bract oblique, acute, 2 mm long; pedicel 2 mm long; ovary 1.5 mm long; dorsal sepal orbicular, convex, the apex rounded, 5 mm long, 5 mm wide, 5-(7)-veined; lateral sepals ovate, obtuse, low-carinate externally, 4 mm long, 2.5 mm wide, connate 1 mm; petals transversely oblong-ovate, 1.25 mm long, 1.5 mm wide, fleshy, the apex broadly rounded and thickened; lip thick, transversely oblong-ovate, 0.5 mm long, 1.25 mm wide, 0.8 mm thick, shallowly concave anteriorly, the apex rounded with a thickened margin, the disc fleshy-thickened transversely, with a small, rounded, pubescent callus on top toward the base and continuous with the glenion anteriorly; column stout, 1 mm long, 1.25 mm wide, the stigma bilobed.

ETYMOLOGY: From the Greek *megalokephalos* (μεγαλοκεφαλός), "with a large head," referring to the proportionately large dorsal sepal.

TYPE: ECUADOR: MORONA-SANTIAGO: epiphytic in rain forest near Rio Calagras, alt. 1600 m, 19 Sept. 1980, C. Luer et al. 5500 (HOLOTYPE: SEL).

DISTRIBUTION: Southeastern Ecuador.

The successively borne flowers of this small species are very large in proportion to the size of the plant. The orbicular dorsal sepal dominates the flower. Although the smaller lateral sepals are only connate basally, they protrude forward in the manner of the bilabiate-flowered species.

Stelis megaloglossa Luer, sp. nov.

Planta parva caespitosa, caulibus secundariis foliis angustissime oblongis subaequilongis, racemo arcuato dense multifloro foliis plus minusve aequilongo, floribus non-resupinatis purpureis bifariis, sepalo mediano obovato obtuso quam synsepalo transverse cordato multimajore, petalis transverse oblongis, labello ovato acuto bicalloso.

Plant small, epiphytic, caespitose; roots slender, flexuous. Secondary stems slender, erect, 5-6.5 cm long, with a tubular sheath from below the middle plus two others near the base. Leaf suberect, coriaceous, narrowly oblong-elliptical, 7-9 cm long, 5-7 mm wide, the obtuse apex notched with an apiculum, narrowly cuneate below to the subpetiolate base. Inflorescence

an arching, densely many-flowered raceme 7-9 cm long including the 2.5-4 cm long peduncle, from a 10-12 mm long spathe near the apex of the secondary stem; floral bract close, 2 mm long, pedicel and ovary each 1 mm long; flowers purple, non-resupinate, perpendicular to the rachis, arranged in 2 rows facing in opposite directions; middle sepal obovate, the apex obtuse to rounded, 5 mm long, 3.75 mm wide, 3-veined with 2 accessory lateral veins, connate 0.5 mm to the lateral sepals; lateral sepals ovate, markedly oblique, connate 0.5 mm to form a transversely cordate synsepal, 2.5 mm long, 3.75 mm wide expanded, the subacute apices free for 0.5 mm and incurved; petals transversely obovate-oblong, 0.6 mm long, 1 mm wide, the apex rounded with a flattened margin, minutely apiculate; lip ovate, 0.75 mm long, 0.4 mm wide, the disc with a central, thick, bilobed callus, concave to the acute, triangular apical portion, pubescent toward the truncate base; column stout, the stigma bilobed.

Etymology: From the Greek *megaloglossa* (μεγαλογλωσσα), "with a large tongue," referring to the proportionately large middle sepal.

Type: COLOMBIA: NARINO: epiphytic in cloud forest east of Ricuarte, 1800 m, 1 Nov. 1979, C. Luer, J. Luer, K. Walter & A. Hirtz 4528 (Holotype: SEL).

Distribution: Southern Colombia.

This species, most remarkable in the "over-sized" middle sepal, seems to demonstrate a connection between *S. nexipous* Garay and the species of the bilabiate section.

Stelis odobenella Luer, sp. nov.

Planta parva caespitosa, racemo laxe plurifloro gracili foliis ellipticis petiolatis duplolongiore, sepalo dorsali purpureo ovato obtuso, synsepalo flavo ovato concavo obtuso, petalis transverse ovatis retusis margine incrassato, labello purpureo subpyramidalis cum carina transverse elata antice bilocallosa, lobis stigmaticis elongatissimis acutis.

Plant small, epiphytic, caespitose. roots slender, flexuous. Secondary stems slender, unifoliate, 7-17 mm long, enclosed by 2 loose, ribbed sheaths. Leaf erect, coriaceous, elliptical, petiolate, 18-35 mm long including the slender petiole 5-13 mm long, 5-8 mm wide, the apex subacute, tridenticulate, the base cuneate into the petiole. Inflorescence a slender, suberect to arching, lax raceme of 5-10 flowers, 1-3 produced simultaneously, 5-6 cm long including the filiform peduncle, from a node on the secondary stem; floral bract 1.5 mm long; pedicel 1 mm long; ovary 1 mm long; dorsal sepal purple, glabrous, broadly ovate, obtuse, 5 mm long, 4 mm wide, 3-veined; lateral sepals yellow, glabrous, connate to above the middle into a broadly ovate, concave, obtuse synsepal, 4 mm long, 4 mm wide; petals purple with 3 darker purple veins, transversely ovate with acute lateral angles, 0.5 mm long, 1.25 mm wide, the rounded apex shallowly and broadly retuse with a thickened margin; lip purple, subpyramidal, 0.5 mm long, 0.6 mm wide, 0.6 mm tall, the truncate apex with an erect, bilobed margin, the disc with a tall, transverse, erect callus with a prominent glenion at the summit and a pair of tuberosities on the anterior surface to either side, the glenion extending toward the base as a rounded callus; column stout, 0.5 mm long with a foot equally long, the stigma with a pair of protruding, slender, curved, acute processes ca. 1 mm long.

Etymology: Named for the genus of walrus, *Odobenus*, in allusion to the tusk-like stigmatic processes.

Type: *ECUADOR*: MORONA-SANTIAGO: epiphytic in wet forest, alt. 2200 m, above Limón, 17 Sept. 1980, C. Luer & J. Luer 5456 (Holotype: SEL).

Distribution: Southeastern Ecuador.

This little species is most remarkable in the long, tusk-like processes of the stigmatic lobes. Like a pair of tiny prongs, they are held within the concave synsepal, the dorsal sepal acting like a lid above.

Stelis opercularis Luer, sp. nov.

Herba parva caespitosa, racemo laxe plurifloro gracili foliis ellipticis duplo vel triplo longiore, sepalo dorsali purpureo ovato obtuso sensibili, synsepalo flavo suborbiculari profunde concavo, petalis crassissimis transverse oblongis, labello purpureo notato transverse obovato cum carina alta transversa et callo purpureo supra basin erecto.

Plant small, epiphytic, caespitose; roots slender, flexuous. Secondary stems unifoliate, 3-4 mm long, enclosed by 1-2 thin, tubular sheaths. Leaf erect, coriaceous, elliptical-obovate, 15-25 mm long including a 5-10 mm long petiole, 6-7 mm wide, the subacute apex tridenticulate, cuneate below into the petiole base. Inflorescence a suberect to arching, slender, laxly 5- to 11-flowered raceme 3-5 cm long including the filiform peduncle, from a node on the secondary stem, 1-3 flowers produced simultaneously, closing quickly when disturbed; floral bract red, infundibular, acute, 1 mm long; pedicel 1 mm long; ovary 1 mm long; dorsal sepal purple, glabrous, broadly ovate, obtuse, 3.5-4 mm long, 3.5-4 mm wide, 3-veined, connate basally to the synsepal for nearly 1 mm; lateral sepals pale yellow, glabrous, connate into a deeply concave, suborbicular synsepal 3 mm long, 3.5-4 mm wide unspread, the rounded apex minutely cleft; petals purple, transversely oblong, very thick, 0.3 mm long, 1.2 mm wide, the apex broadly obtuse, the surface cellular-glandular; lip light green, marked with purple, transversely obovate, 0.5 mm long, 0.75 mm wide, 0.6 mm tall, the truncate apex with an erect margin, the disc with a tall, erect, transverse carina with a glenion at the summit and an erect, purple callus on top near the base; column stout, 0.5 mm long with an equally long foot, the stigmatic lobes shortly stalked.

Etymology: From the Latin *opercularis*, "provided with a lid," referring to the sensitively hinged dorsal sepal over the concave synsepal.

Type: *ECUADOR*: MORONA-SANTIAGO: epiphytic in rain forest between Limón and Gualaquiza, alt. 1600 m, 19 Sept. 1980, C. Luer, J. Luer, C. Dodson *et al.* 5500 (Holotype: SEL).

Distribution: Southeastern Ecuador.

This little species may be recognized by the purple lid-like dorsal sepal which closes over a deeply concave, bowl-like synsepal in the afternoon or when disturbed, especially when moved into drier air.

Stelis pachyrrhiza Luer & Vásquez, sp. nov.

Planta terrestris caespitosa, radicibus crassissimis, foliis anguste ellipticis caulibus secundariis subaequilongis, racemis paucis elongatis erectis dense multifloris, sepalis similibus, flavis, ovatis, obtusis, ciliatis, petalis atropurpureis flabellatis apice rotundatis incrassatis, labello atropurpureo subquadrato callo crasso leviter canaliculato base truncato pubescenti apice concavo late obtuso.

Plant medium in size, terrestrial, densely caespitose; roots thick, coarse,

fasciculate. Secondary stems erect, unifoliate, 4-8.5 cm long, with a tubular sheath from below the middle and 2 others near the base. Leaf erect, coriaceous, narrowly elliptical, 4.5-7 cm long, 1-1.5 cm wide, the apex acute, tridenticulate, cuneate below into the subpetiolate base. Inflorescence racemose, 2-5 erect, densely many-flowered racemes 7-16 cm long including the peduncle 4-6 cm long, from a spathe 10-12 mm long near the apex of the secondary stem; floral bract 2.5 mm long; pedicel and ovary each 1.5 mm long; sepals similar, widespread, yellow-green, ciliate and pubescent near the margins, ovate, obtuse, connate basally, 3-veined, the dorsal sepal 2.5 mm long, 2.25 mm wide, the laterals 2.25 mm long, 2 mm wide; petals dark purple, transversely obovate-flabellate, the rounded apex thickened, 1 mm long, 1.1 mm wide; lip dark purple, subquadrate, 1 mm long, 1 mm wide, callous-thickened and lightly channeled to above the middle, concave above the broadly obtuse apex, the truncate base microscopically pubescent; column stout, the stigma bilobed.

Etymology: From the Greek *pachys* (παχύς), "thick" and *rhiza* (ρίζα), "root," referring to the very thick roots of the species.

Type: *BOLIVIA*: LA PAZ: Prov. of Inquisivi, terrestrial among shrub vegetation between Quime and Inquisivi, alt. 3000 m, 27 Jan. 1981, C. Luer, J. Luer, E. Besse & R. Vásquez 5737 (Holotype: SEL).

Distribution: Bolivia.

This species is most remarkable in the exceptionally thick roots for the genus. Plants were found growing terrestrially in high, cold, foggy, scrubby terrain. Whether or not plants also grow epiphytically is unknown.

Stelis pendens Luer & Vásquez, sp. nov.

Herba mediocris pendens, caulibus secundariis gracilibus vaginibus basalibus pubescentibus foliis plus minusve aequilongis, spatha conspicua, racemo pendulo subdense multifloro, floribus purpureis parvis non-resupinatis, sepalis similibus ovatis acutis ciliatis, petalis tenuibus proportionem grandibus reniformibus, labello oblongo leviter concavo apice late rotundato.

Plant medium in size, epiphytic, shortly repent to caespitose, pendent; roots slender, flexuous. Secondary stems descending, slender, unifoliate, 3-9 cm long, with a close, tubular sheath near the middle and 2 shorter, red-pubescent sheaths at the base. Leaf pendent, coriaceous, elliptical, subsessile, 4-7 cm long, 1.2-1.9 cm wide, the acute apex tridenticulate, cuneate at the base. Inflorescence a dependent, flaccid, subdensely many-flowered raceme 10-14 cm long including the slender peduncle, from a 1.3-1.5 cm long oblique spathe near the apex of the secondary stem; floral bract 2 mm long; pedicel 2.5 mm long; ovary 2 mm long; flowers small, non-resupinate in the pendent position; sepals similar, red-purple, widespread, ciliate, ovate, acute, 2.5 mm long, 2 mm wide; petals rosy white edged in purple, thin, transversely oblong, broadly rounded, 1.3 long, 2 mm wide; lip greenish white, lightly suffused with purple at the apex, ovate-oblong, 1.3 mm long, 0.9 mm wide, 0.5 mm deep, the apex broadly rounded, shallowly concave and more or less filled with a droplet of clear fluid, the base truncate, microscopically pubescent; column stout, 0.6 mm long, 1.2 mm wide, the stigma bilobed, the foot obsolescent.

ETYMOLOGY: From the Latin *pendens*, "pendulous," referring to the habit of the plant.

TYPE: *BOLIVIA*: COCHABAMBA: Prov. of Charasco, epiphytic in rain forest along Rio Mendoza below Monte Puncu, alt. 2500 m, 1 Feb. 1981, cult.

at SEL, flowered in cult. 17 April 1981, *C. Luer, J. Luer, E. Besse & R. Vasquez 6012* (HOLOTYPE: SEL).

DISTRIBUTION: Bolivia

This species may be distinguished by the pendent habit; pubescent basal sheaths; a conspicuous spathe; small, purple flowers with similar, ciliated sepals; proportionately large, thin, reniform petals; and a shallowly concave, ligulate lip.

This species may be distinguished by the pendent habit; pubescent basal sheaths; a conspicuous spathe; small, purple flowers with similar, ciliated sepals; proportionately large, thin, reniform petals; and a shallowly concave, ligulate lip.

Stelis pristis Luer, sp. nov.

Planta mediocris caespitosa, foliis ellipticis obtusis petiolatis quam caulibus secundariis plus minusve aequilongis, racemo multilongiore dense multifloro floribus glabris purpurascens horizontalibus alternantibus, bracteis floralibus inflatis, sepalo dorsali elliptico obtuso basin versus synsepalo brevi bifurcato concavo connato, petalis lunatis marginibus incrassatis, labello crasso triangulari apice rotundato disco concavo.

Plant medium-sized, epiphytic, caespitose; roots numerous, fine, flexuous. Secondary stems slender, erect, 4-7 cm long, mostly concealed by a loose, tubular sheath with 1-2 shorter, basal sheaths. Leaf erect, coriaceous, elliptical, 4-8 cm long including a petiole 1.2-1.5 cm long, 1.5-2 cm wide, the apex obtuse to rounded, minutely notched, the base cuneate into the slender petiole. Inflorescence an erect, densely many-flowered raceme 12-15 cm long including the peduncle 2-3 cm long, from an erect, narrow spathe 1-1.2 cm long at the node below the leaf-stem abscission layer; floral bracts inflated, approximate, 5 mm long, 5 mm wide expanded, enclosing the 2 mm long pedicel and the 1 mm long ovary; flowers glabrous, purple externally, greenish purple within, arranged perpendicularly to the rachis, alternating in opposite directions but facing the same side; dorsal sepal elliptical, erect, obtuse, 5.5 mm long, 3.5 mm wide, connate 1.5 mm to the lateral sepals, the free portion 4.5 mm long, 5-veined; lateral sepals ovate, oblique, semiconnate to form a shallowly concave synsepal, each 2 mm long, 3 mm wide, 4 mm across together, the 1 mm long, free apices acute; petals purple, lunate, 0.75 mm long, 1.1 mm wide, the rounded, thickened margin flat-edged with silver, crystalline-like deposits; lip purple, thick, triangular, 0.5 mm long, 0.8 mm wide, 0.8 mm deep, the apex rounded, the transverse thickening prominent, the disc concave, the dorsum filled with a low, broad callus; column stout, 0.75 mm long, the stigma bilobed.

Etymology: From the Latin *pristis*, "a sawfish," in allusion to the appearance of the raceme.

Type: ECUADOR: COTOPAXI: epiphytic in cloud forest between Angamarca and El Corazón, alt. 1500 m, 17 Feb. 1979, *C. Luer, J. Luer & A. Hirtz 4004* (Holotype: SEL).

Distribution: Western Ecuador.

The most remarkable, elongated flowers of this species all face to one side, perpendicular to the rachis, and in alternating opposite directions, creating an illusion of the double-edged "sawfish" beak. The base of the dorsal sepal is well incorporated into the formation of a shallow sepaline cup, i.e., connate for at least 1 mm below the marginal union with the lateral sepals. The lateral sepals are very short, broader than long, and semiconnate.

Stelis pudens Luer, sp. nov.

Planta mediocris breviter repens, caulibus secundariis foliis anguste ellipticis subaequilongis, racemo dense multifloro folia duplo superanti, bracteis obliquis conspicuis, floribus parvulis sensitivis, sepalis similibus late ovatis obtusis leviter pubescentibus infra medium in cupulam connatis, petalis flabellatis apice incrassatis, labello subquadrato truncato concavo supra basim callo curvato.

Plant medium in size, epiphytic, caespitose, the rhizome coarse, shortly repent, ascending, branching, the secondary stems approximate or separated up to 1 cm; roots slender, flexuous. Secondary stems erect, slender, 2-5 cm long, enclosed by 3 loose, imbricating, tubular sheaths. Leaf erect, coriaceous, narrowly elliptical, 3-6 cm long, 0.6-1 cm wide, the apex acute, tridenticulate, gradually narrowed below to the subpetiolate base. Inflorescence a slender, erect, densely many-flowered, distichous raceme 5-15 cm long including the 4-8 cm long peduncle, from a node near the apex of the secondary stem; floral bract oblique, acute, 4 mm long below to 2.5 mm long above; pedicel and ovary each 1 mm long; sepals similar, sensitive, yellow-orange externally, light green and sparsely pubescent within, not wide-spreading, deeply connate to form a cup filled by the central apparatus, broadly ovate, obtuse, 3-veined, the dorsal sepal 1.75 mm long, 1.75 mm wide, the laterals 1.25 mm long, 1.75 mm wide; petals light yellow, transversely obovate-flabellate, 1 mm long, 1.25 mm wide, the thickened apex broadly obtuse, subverrucose; lip light yellow, subquadrate, 1 mm long, 1.2 mm wide, 0.6 mm deep, concave, the apex truncate, with a U-shaped callus from both sides around and above the truncate base; column stout, 1.2 mm long, with a short, incurved foot, the stigmatic lobes protuberant with incurved, dentate margins.

Etymology: From the Latin *pudens*, "bashful," in allusion to the sensitive flowers.

Type: *ECUADOR*: LOJA: epiphytic in cloud forest south of Yangana, alt. 2250 m, 11 May 1981, C. Luer, J. Luer, J. Kuhn, L. Kuhn & D. D'Alessandro 6179 (Holotype: SEL).

Distribution: Southern Ecuador.

Vegetatively *S. pudens* is similar to many other species of the genus. The minute flowers are sensitive, the sepals closing over a comparatively large central apparatus. The petals and lip are nearly as large as the sepals themselves. The nearly square, concave lip bears a U-shaped callus.

Stelis rosulenta Luer & Vásquez, sp. nov.

Planta mediocris caespitosa, folio elliptico caulibus secundariis longiore, racemo erecto gracili dense multifloro folio multilongiore, floribus parvis subsphaericis roseo suffusis, sepalis late ovatis obtusis usque medium connatis, petalis membranaceis transverse obovatis, labello profunde concavo minute apiculato base truncato transverse calloso, columna tereti, stigmatibus transverso, pede brevi.

Plant medium-sized, epiphytic, caespitose; roots slender, flexuous. Secondary stems erect, stout, unifoliate, 2-5 cm long, enclosed by 2-3 tubular, ribbed sheaths. Leaf erect, oblong-elliptic, coriaceous, 5-8 cm long, 1.5-2.3 cm wide, the apex obtuse to round, tridenticulate, cuneate below to an ill-defined petiole ca. 0.5 cm long. Inflorescence an erect, distichous, densely many-flowered raceme of small, subspherical flowers, 12-17 cm long, the peduncle ca. 5 cm long, from a 6-12 mm long spathe near the apex of the secondary stem; floral bract oblique, infundibular, 2 mm long; pedicel 1.5 mm

long, ovary 1.5 mm long; sepals translucent pale rose, mottled and speckled with rose, glabrous except for the partially short-ciliate inner margins of the lateral sepals, broadly ovate, obtuse, the dorsal sepal 2.6 mm long, 2.3 mm wide, the lateral sepals 2.3 mm long, 2 mm wide, connate 1 mm to form a globose, sepaline tube filled with the inner floral parts, the free parts of the sepals only slightly recurved; petals membranous, white, suffused with rose near the outer margin, transversely obovate, the apex broadly obtuse to truncate, 1.3 mm long, 1.5 mm wide, the margin only minimally, irregularly thickened; lip purple, suborbicular, deeply concave, 1.3 mm long, 1.3 mm wide, the apex rounded, minutely apiculate, the truncate base with a narrow, transverse callus; column white, suffused with purple, stout, terete, 1 mm long, the stigma transversely oblong, the foot 0.5 mm long.

ETYMOLOGY: From the Latin *rosulentus*, "full of roses," in allusion to the multitude of tiny flowers that look like little rose buds.

TYPE: BOLIVIA: LA PAZ: Prov. of Inquisivi, epiphytic in cloud forest between Inquisivi and Circuata, alt. 2500 m, 28 Jan. 1981, C. Luer, J. Luer, E. Besse & R. Vásquez 5980 (HOLOTYPE: SEL).

DISTRIBUTION: Bolivia.

This species may be recognized by the long spike of small, subspherical, rose bud-like flowers, membranous petals, and a concave, rounded lip with a transverse callus at the base where it is broadly affixed to a broad, short column-foot.

Stelis rutrum Luer & Vásquez, sp. nov.

Planta parva caespitosa, caulibus secundariis foliis anguste ellipticis subaequilongis, racemo plurifloro foliis longiore, sepalis similibus flavescentibus glabris ovatis obtusis, petalis purpureis transverse ovatis apice rotundatis incrassatis, labello purpureo late ovato infra callum transversum basalem tenuiter concavo apice rotundato, base pubescenti cum callo parvo rotundato.

Plant small, epiphytic, caespitose; roots slender, flexuous. Secondary stems slender, erect, unifoliate, 2-3.5 cm long, mostly enclosed by 3 loose, tubular sheaths. Leaf erect, coriaceous, narrowly elliptical, petiole, 3-4.5 cm long including the 1-1.5 cm long petiole, 0.8-1 cm wide, the apex acute, tridenticulate, the base narrowly cuneate into the slender petiole. Inflorescence an erect, densely, several-flowered raceme 6-9 cm long including the peduncle 3-4 cm long, from a node near the apex of the secondary stem; floral bracts 2.5-3 mm long; pedicel 1.5 mm long; ovary 1.5 mm long; sepals similar, yellow-green to yellow-orange, glabrous, ovate, obtuse, connate basally, 3-veined, the dorsal sepal 3 mm long, 2.75 mm wide, the laterals 2.5 mm long, 2.5 mm wide; petals purple, transversely ovate, 1.1 mm long, 1.5 mm wide; the apex broadly rounded, thickened, with minute flecks of silver; lip purple, oblong-ovate, 1.25 mm long, 1.25 mm wide, 0.6 mm deep, with a narrow, transverse carina near the base, broadly concave to the rounded apex, the basal surface pubescent with a central, rounded callus; column short, stout, the stigma bilobed.

Etymology: From the Latin *rutrum*, "a shovel," in allusion to the shape of the lip.

Type: BOLIVIA: CHAPARE: epiphytic in cloud forest along the road to Villa Tunari, alt. 2400 m, 13 Jan. 1981, C. Luer, J. Luer, E. Besse & R. Vásquez 5648 (Holotype: SEL).

Distribution: Bolivia.

This little species may be identified by the broadly concave disc below

a narrow, minutely cleft, transverse callus (the bridge) bordering the shallow, narrow, pubescent basal portion on top.

Stelis sarcophylla Luer, sp. nov.

Planta mediocris caespitosa, foliis strictis carnosissimis anguste linearibus apice obtusis retusis caulibus secundariis longioribus, racemo multifloro disticho folios leviter superanti, floribus purpureis perparvis, sepalis similibus patentibus late ovatis obtusis, petalis transverse rhomboideis, labello oblongo apice rotundato basi crasso calloso, columna brevi lobis stigmatis confluentibus.

Plant medium-sized, epiphytic, caespitose; roots coarse, flexuous. Secondary stems erect, unifoliate, 5-10 cm long, mostly enclosed by a tubular sheath from below the middle and 1-2 other sheaths near the base. Leaf erect, thickly coriaceous, rigid, narrowly linear-oblong, wedge-shaped in cross-section, 11-16 cm long, 1.2-1.4 cm wide, the obtuse apex retuse, the base cuneate to the subsessile base. Inflorescence an erect, distichous, many-flowered raceme, crowded above, distantly-flowered below, 12-18 cm long including the 5-7 cm long peduncle, from a spathe 5-9 mm long near the apex of the secondary stem, the flowers purple, small, short-pedicellate; floral bracts oblique, 0.5-1.5 mm long; pedicel 1 mm long, ovary 0.75 mm long; sepals similar, widespread, glabrous, broadly ovate, obtuse, 1.5 mm long, 1.5 mm wide, connate basally; petals transversely rhomboid, 0.75 mm long, 1.1 mm wide, the apical margin thickened, broadly obtuse; lip oblong-ligulate, 0.75 mm long, 0.75 mm wide, the anterior surface more or less flat, non-concave, the apex rounded, the disc callous-thickened below the middle with a low, glandular callus on top toward the base and continued forward on the anterior surface as the glenion; column stout, 0.5 mm long, 0.5 mm wide, the stigmatic lobes confluent.

ETYMOLOGY: From the Greek *sarx*, *sarkos* (σὰρξ), "flesh," and *phyllon* (φύλλον), "leaf," referring to the thick, fleshy leaves.

TYPE: PANAMA: CHIRIQUI: epiphytic in scrubby trees on the Llanos del Volcán, alt. 1500 m, 10 Sept. 1976, cult. at SEL, flowered in cult. 15 Oct. 1976 *C. Luer & H. Butcher 1245* (HOLOTYPE: SEL).

DISTRIBUTION: Western Panama.

This species is most remarkable in the long, narrow, thick, fleshy leaves, longer than the secondary stems. The small, purple flowers are short-pedicellate; the sepals are similar, ovate, obtuse, widespread; the ligulate lip is rounded; and the stigmatic lobes are confluent.

Stelis semperflorens Luer, sp. nov.

Planta parva caespitosa, caulibus secundariis foliis obovatis multibrevioribus, racemo perlongo flexuoso floribus successivis, sepalis similibus ovatis obtusis recurvatis supra medium breviter pubescentibus, petalis transverse obovatis apice rotundatis incrassatis, labello crasso subquadrato apice rotundato.

Plant small, epiphytic, densely caespitose; roots filiform, flexuous. Secondary stems unifoliate, abbreviated, 5-8 mm long, enclosed by 2-3 ribbed, tubular sheaths. Leaf erect, coriaceous, elliptical-obovate, 2-3 cm long, 6-9 mm wide, the apex obtuse, minutely notched, with an apiculum, cuneate below into a subpetiolate base. Inflorescence a progressively lengthening, loosely flowered, flexuous, flexible raceme up to 32 cm long, 7-10 mm be-

tween flowers, 2-6 flowers produced simultaneously, from a node on the secondary stem; floral bracts thin, close, 1.5 mm long; pedicel 1.5 mm long; ovary 1-1.5 mm long; sepals similar, purple below the middle, dull white and shortly pubescent above the middle, ovate, obtuse, recurved, connate basally, 1.75 mm long, 1.75 mm wide; petals green, suffused with purple, transversely obovate, 0.8 mm long, 1.25 mm wide, the apex broadly rounded and thickened with the surface glandular-cellular; lip purple, subquadrate from above, triangular from the side, 0.4 mm long, 0.75 mm wide, with a transverse callus, shallowly concave to the rounded apex, the dorsum more or less flat and soft-cellular, with a low, rounded, central callus; column stout, the stigma bilobed.

Etymology: From the Latin *semperflorens*, "always in flower," referring to a quality of the species.

Type: PANAMA: PANAMA: epiphytic in cloud forest on Cerro Jefe, alt. 1000 m, 2 March 1976, C. Luer, J. Luer, P. Taylor & R. L. Dressler 966 (Holotype: SEL).

Distribution: Eastern Panama.

During the more than five years that this little species has been in cultivation at SEL, it has been constantly in flower. It has produced numerous, progressively lengthening racemes each of which flowers continuously for about a year. The much smaller habit separates it from *S. vestita* Ames.

***Stelis tonsoria* Luer, sp. nov.**

Planta mediocris brevis repens, caulibus secundariis vaginis purpureo punctatis folio elliptico petiolato subaequilongis, racemo dense plurifloro foliis subaequilongo, floribus grandibus albis rubrostriatis, sepalis lateralibus obliquis triangularibus conniventibus mentum profundum formantibus, petalis flavis crassis lunatis apiculatis, labello transverse subquadrato longi-apiculato.

Plant medium in size, epiphytic, shortly repent but forming dense clumps; roots numerous, fine, flexuous. Secondary stems erect, slender, 1.5-6 cm long, enclosed by 2-3 loose, imbricating, purple-spotted, tubular sheaths. Leaf erect, coriaceous, elliptical, petiolate, 5-8 cm long including the 1-3 cm long petiole, 1.5-2 cm wide, the acute apex minutely tridenticulate, cuneate below into the slender petiole. Inflorescence a solitary, congested, several-flowered raceme 4-6 cm long including the peduncle ca. 2 cm long, from a node near the apex of the secondary stem; floral bract inflated, obtuse, 3 mm long; pedicel 1 mm long; ovary 1.5 mm long; dorsal sepal white, suffused with red-purple externally, ovate-oblong, the obtuse apex thickened, 8-9.5 mm long, 3-3.75 mm wide, 5-veined, connate basally to the lateral sepals for 2 mm; lateral sepals white, conspicuously striped with red-purple, obliquely triangular, acute, each 6.5 mm long, 4.5 mm wide across the base, 4-veined, connate 1.5 mm basally, connivent to form a deep mentum containing the central apparatus deep within; petals yellow, thick, semilunate, with a broad, flat anterior surface, the rounded apex apiculate, 1.6 mm long, 1.2 mm wide; lip yellow, transversely subquadrate, 1.2 mm long including the 0.5 mm long apiculus, 1 mm wide, the anterior surface shallowly concave, the apex obtusely acuminate into the apiculus, the dorsum with a low, 3-lobed callus behind a well-developed bridge; column stout, 0.5 mm long, the stigma bilobed.

Etymology: From the Latin *tonsorius*, "pertaining to barbering," in fanciful allusion to the red-striped barber pole.

Type: COLOMBIA: NARINO: epiphytic in cloud forest above Ricaurte, alt. ca. 1600 m, 3 Nov. 1979, C. Luer, J. Luer, K. Walter & A. Hirtz 4579 (Holotype: SEL).

Distribution: Southern Colombia.

The flowers of this handsome species are white, marked with red-purple, the connivent lateral sepals conspicuously striped. The long dorsal sepal is connate to the lateral sepals to form a deep mentum in which the central apparatus is located low on the posterior wall.

Stelis viridula Luer, sp. nov.

Planta perparva dense caespitosa, caulibus secundariis brevissimis, racemo laxe plurifloro folia anguste obovata duplo superanti, floribus minutis viridibus, sepalis similibus breviter pubescentibus ovatis obtusis uninervatis, petalis membranaceis transverse oblongis, labello carnoso transverse ovato.

Plant very small, epiphytic, densely caespitose; roots fine, flexuous. Secondary stems abbreviated, unifoliate, 3-5 mm long, enclosed by 2-3 thin, ribbed, tubular sheaths. Leaf suberect, coriaceous, narrowly obovate, 15-27 mm long, 2.5-4 mm wide, the apex acute, tridenticulate, gradually narrowed below to the indistinctly petiolate base. Inflorescence a loosely few-flowered, subflexuous raceme 3-6.5 cm long including the 2 cm long capillary peduncle, from a node on the secondary stem; floral bract oblique, thin, 1 mm long; pedicel 1 mm long, ovary 0.75 mm long; sepals similar, pale green, shortly pubescent within with capitate hairs, ovate, obtuse, 1-nerved, connate basally, the dorsal sepal 1.3 mm long, 1.3 mm wide, the laterals 1.3 mm long, 1 mm wide; petals transversely oblong, 0.5 mm long, 0.66 mm wide, membranous, slightly thickened along the truncate apical margin; lip thick, transversely ovate, 0.4 mm long, 0.6 mm wide, the apex broadly obtuse, the base with a flat, rounded, pubescent callus extending forward over the central thickening onto the front surface as the glenion; column stout, 0.4 mm long, the foot 0.2 mm long, the stigma bilobed.

Etymology: From the Latin *viridulus*, "greenish," referring to the little, green flowers.

Type: ECUADOR: MORONA-SANTIAGO: epiphytic in rain forest near Río Calagras, alt. 1600 m, 19 Sept. 1980, C. Luer, J. Luer, A. Andreetta, C. Dodson et al. 5488 (Holotype: SEL); cult. at SEL 80-1477, flowered in cult. 20 March 1981, C. Luer 5982 (SEL).

Distribution: Southeastern Ecuador.

This very small species is characterized by the narrowly obovate leaves topped by the loosely few-flowered capillary raceme of minute, green flowers. The similar sepals are covered by capitate hairs within, the petals are membranous, and the thick lip is transversely ovate.